ENERGY LOGISTICS & DISTRIBUTION

Industry In-Sight™

SPRING/SUMMER 2022




JORDAN KNAUFF & COMPANY

ENERGY EQUIPMENT & INFRASTRUCTURE ALLIANCE

The Voice of the Energy Supply Chain

ENERGYBUILDERS

IN THIS REPORT

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All charts in this report are updated to the latest information available at the time of publication. Due to differing reporting dates for various data used throughout the report, all charts are not updated to the same ending period.

INTRODUCTION ... About This Report

We are pleased to offer this periodic report which provides a comprehensive compilation of energy information, insights and data. It aggregates critical planning and forecasting information from a myriad of sources into one resource for energy supply chain analysts and decision-makers.

The energy supply chain is an increasingly complex network of upstream, midstream and downstream providers of construction, equipment, materials and services. As shale gas-oil and renewable energy continue to expand in the U.S., additional infrastructure is needed to connect the new sources to the current network of pipelines, storage and transmission stations. Current and new members of the supply chain will need to expand in order to build and service the additional infrastructure.

We define the Energy Logistics & Distribution Industry as any energy production, transportation and storage activities that take place from the well-head to the refinery or gas processing plant through delivery to the end user. Industry members include: producers and distributors of oil and natural gas, natural gas liquids, refined fuels and propane; energy storage and pipeline operators; oil and gas field services; producers and distributors of lubricants, oils, greases and fluids; service contractors, capital equipment manufacturers; materials suppliers; as well as logistics, transportation and maintenance providers.

Segments covered in this Industry In-Sight™ include:

- Crude oil and refined products, natural gas, liquefied natural gas (LNG), natural gas liquids including propane and heating/fuel oil, as well as drilling activity.
- Renewables, including solar, wind, hydropower and ethanol.
- Logistics, including storage and terminals, pipelines, trucking, shipping and rail.
- Economic and financial data pertinent to the Energy Logistics & Distribution Industry.

It is our intention that this publication will provide value in the following areas:

- **Aggregate Information** – The Data Center provides comprehensive statistics on the Energy Logistics & Distribution Industry including, among others: prices (domestic and international), production, consumption, inventory, imports/exports, LNG terminals, drilling activity, solar and wind capacities, energy consumption by sector and source, tank and underground storage capacities and utilization, pipeline mileage and trucking conditions. In all, the report offers more than 70 individual charts covering these topics and more. All charts in this report are updated to the latest information available at the time of publication.
- **Input to Business Decisions** – As a relevant and informative reference for use when contemplating decisions that will have a meaningful impact on your business. Accordingly, we welcome any input, feedback and suggestions to help us include meaningful and timely topical content in future publications. We especially would like to receive suggestions for ideas on Hot Topics in the Energy Logistics & Distribution Industry.
- **Identification of Opportunities** – The breadth of information provided will enable owners and operators of energy logistics businesses to track developments in energy segments outside of their day-to-day focus.
- **Public and Transaction Comparables by Segment** – This section provides the tracking of a cross-section of publicly-traded companies and transactions in various segments of the Energy Logistics & Distribution Industry. The data include operating metrics, such as revenues and EBITDA (earnings before interest, taxes, depreciation and amortization); and valuation analyses such as total enterprise value / latest twelve months revenues and total enterprise value / latest twelve months EBITDA.

Thank you for taking the time to review this Energy Logistics & Distribution Industry In-Sight™. Our goal is to provide the most comprehensive and beneficial information possible. Please forward your feedback and suggestions to any member of the Jordan Knauff & Company or Energy Equipment & Infrastructure Alliance team members listed on the last two pages of this report.

INTRODUCTION

Who is the Energy Equipment & Infrastructure Alliance (EEIA)?

EEIA ... The Voice of the Energy Supply Chain

The energy supply chain is over 120,000 companies in sixty industries, annually contributing more than $170 billion to the U.S. economy, with hundreds of thousands of workers in communities throughout every state of the union. They provide construction, well services, capital equipment, supplies, logistics, professional services and technology in support of energy operations. They build energy infrastructure including production sites, transmission infrastructure, pipelines, storage facilities, processing plants and export terminals.

The shale energy revolution is transforming prosperity, security and quality of life in America. In a few short years, it has brought rising employment, income and opportunity to workers and businesses of all sizes and in all fifty states, often to communities that until recently have known limited prospects for growth. It has given Americans a cleaner environment, lower energy costs, renewed national competitiveness and energy security.

Creating a supportive public and policymaker environment for this miracle depends on active public engagement by energy supply chain stakeholders -- the non-oil and gas companies where energy-driven jobs and opportunities are greatest.

EEIA is that voice. EEIA mobilizes and leads the North American supply chain in pursuit of government policies that support full development of our energy resources, while protecting public health, safety and the environment. It also works for widespread public support for energy development.

EEIA is active on all fronts: federal and state legislative, regulatory, judicial and public opinion. Its strength is based upon the supply chain's enormous fifty-state contributions to jobs, economic growth and community prosperity. EEIA conducts economic research that measures and reports the facts about the energy supply chain's tremendous contributions to the American economy.

EEIA is an organization of leading supply chain companies, trade associations and labor organizations. It is the voice of the businesses and workers of America's energy miracle.




INTRODUCTION

Who is Jordan Knauff & Company (JKC)?

JKC was founded in 2001 to undertake a distinct mission: to assemble and maintain a staff of top-notch investment banking personnel and offer their knowledge and experience to provide the best available investment banking services to middle-market companies, the entrepreneurs that lead them and the financial entities that transact with them. JKC has been active within the Energy Logistics & Distribution Industry as operators, investors, board members and investment bankers prior to the firm's founding in 2001.

On a combined basis, over the course of their careers our employees have completed over 200 transactions as investors, owners, operators, buyers, sellers and investment bankers of middle-market businesses across a variety of industries. The majority of our firm's broad transaction experience has been with private companies owned by one shareholder, a partnership, a family or private equity investors.

Experience has taught us that the owners and executives of middle-market businesses tend to have very different needs and goals in capital transactions from those that are common to capital events related to larger companies. Our personnel apply their considerable expertise to accomplish important goals: delivery of successful outcomes for our clients. Pursuant to that, we direct and manage all aspects of the capital transaction process, assist our clients with the management of important constituents (employees, customers, vendors and lenders), act as a teammate to other important client advisors (legal counsel, accountant, tax advisor) and collaborate with transaction counsel in the negotiations with the parties on the other side of the transaction.

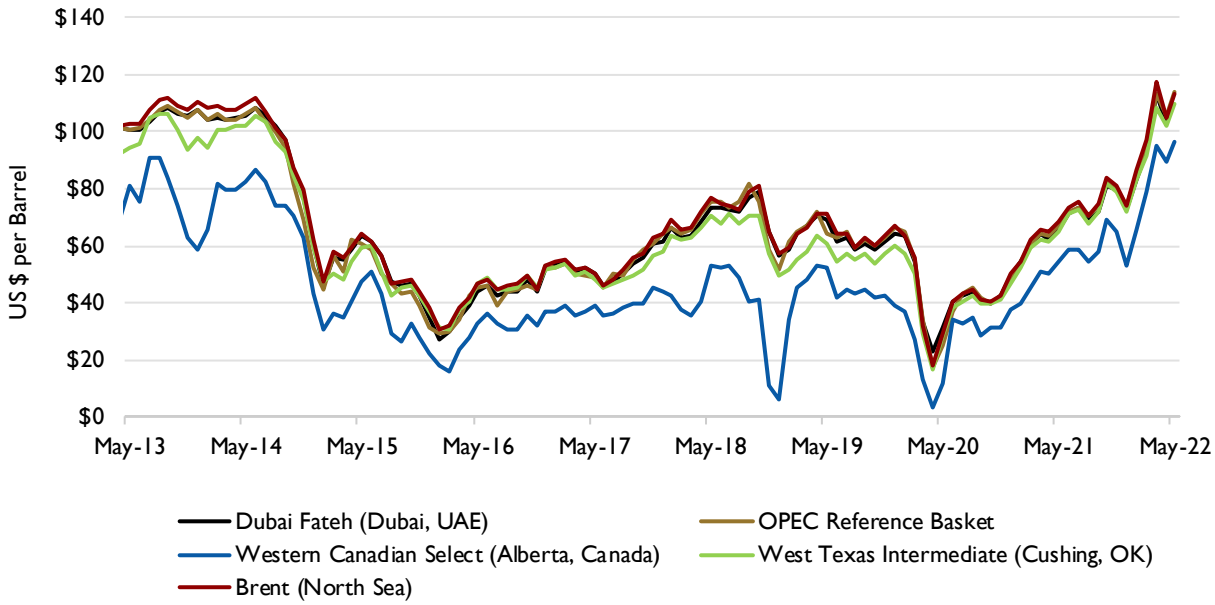
The Services We Provide

- Sell Companies: Generate a liquidity event on behalf of the owner(s) through whole, majority, or minority sale of assets, stock or units.
- Raise Capital: Representation of companies, management teams and entrepreneurs in the raising of senior debt, mezzanine debt or equity capital. Proceeds may be used for a variety of reasons, including, among others, recapitalizations, funding of growth, funding of acquisitions or liquidity for owners and investors.
- Acquisition Advisory: Assistance in sourcing and closing acquisitions -- whether it be a single transaction or a series of acquisitions as part of a consolidation strategy in an Industry Development Project™ (IDP) - a proprietary method for assisting private equity groups, companies or private investors that want to pursue multiple non-auction transactions within a single industry.
- Strategic Business Services: A suite of services for middle-market business owners and executives. Comprised of three components – Company Specific Valuation, Capital Road Map® and Strategic Industry Analysis – these services can be packaged together or used on an à la carte basis.

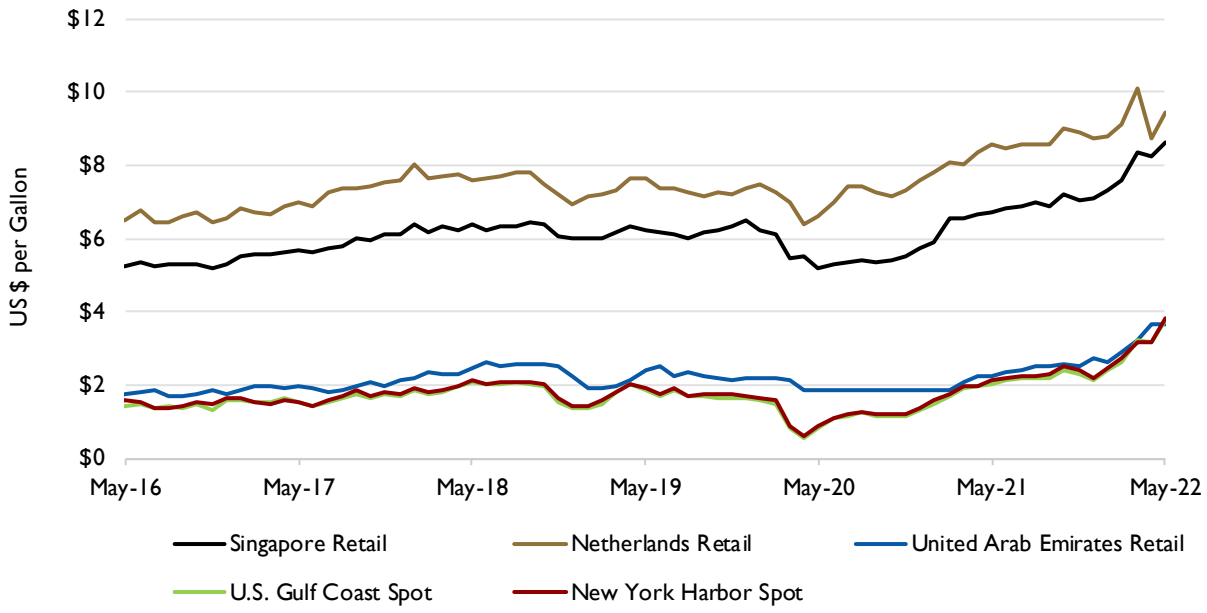
DATA CENTER

OIL

CRUDE OIL PRICES (MONTHLY AVERAGE) (1)



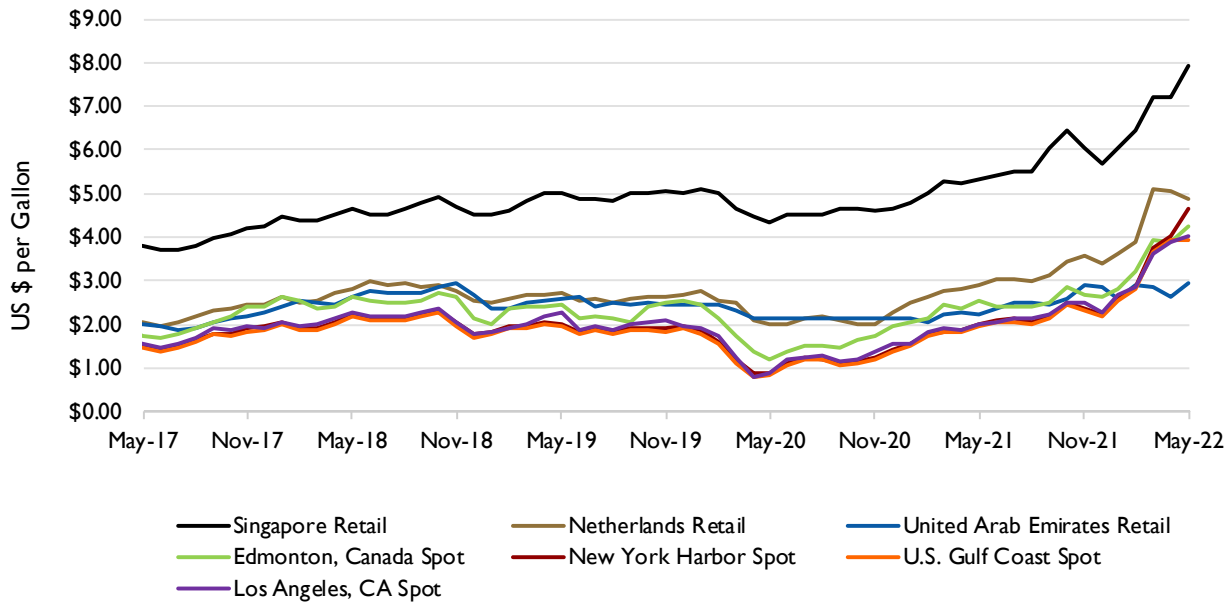
GASOLINE PRICES (MONTHLY AVERAGE) (2)



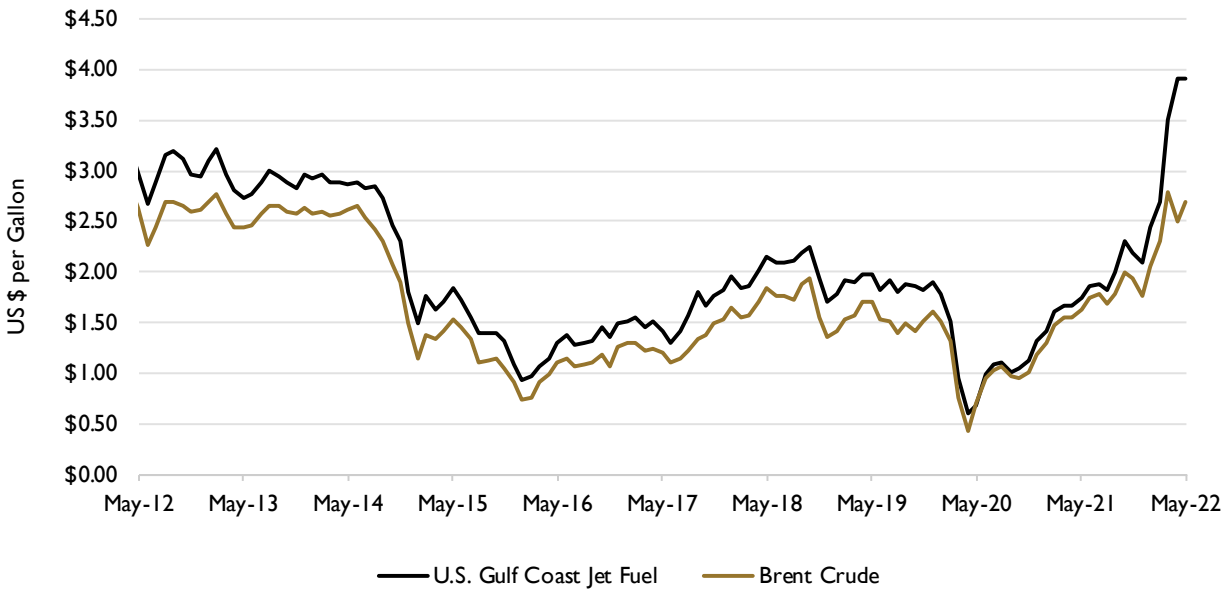
DATA CENTER

OIL

DIESEL PRICES (MONTHLY AVERAGE) (3)



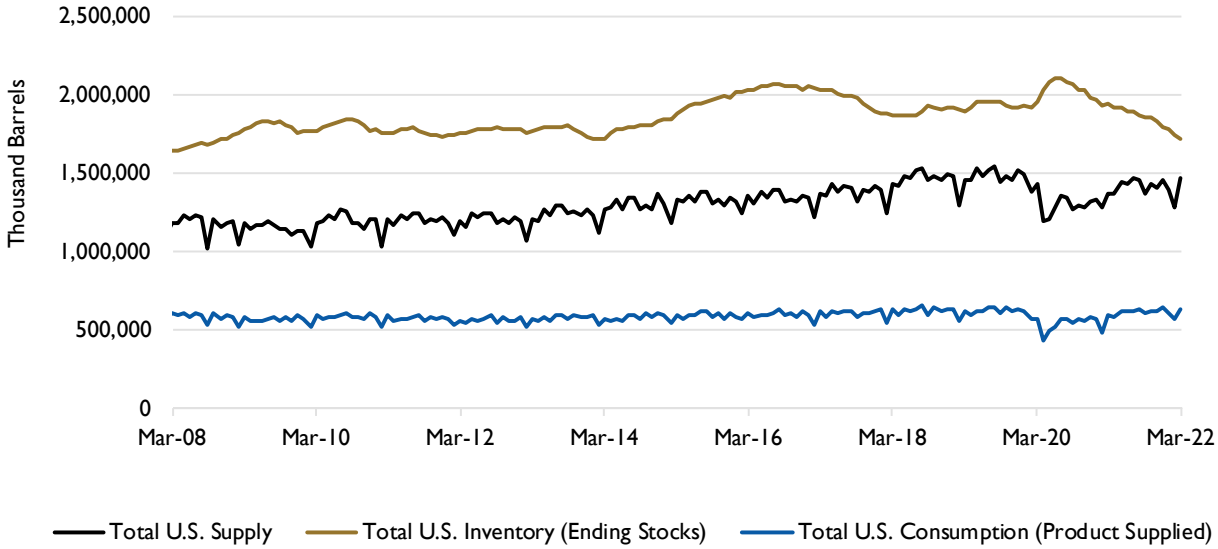
JET FUEL PRICES (MONTHLY AVERAGE) (4)



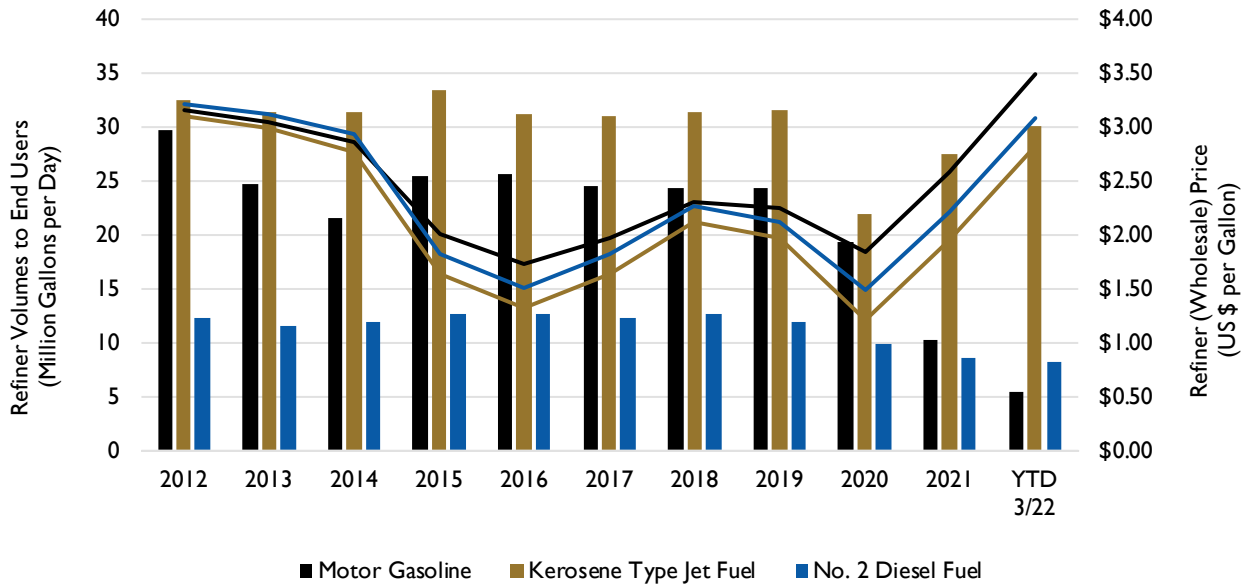
DATA CENTER

OIL

U.S. Crude Oil and Petroleum Products Supply, Inventory and Consumption (Monthly) (5)



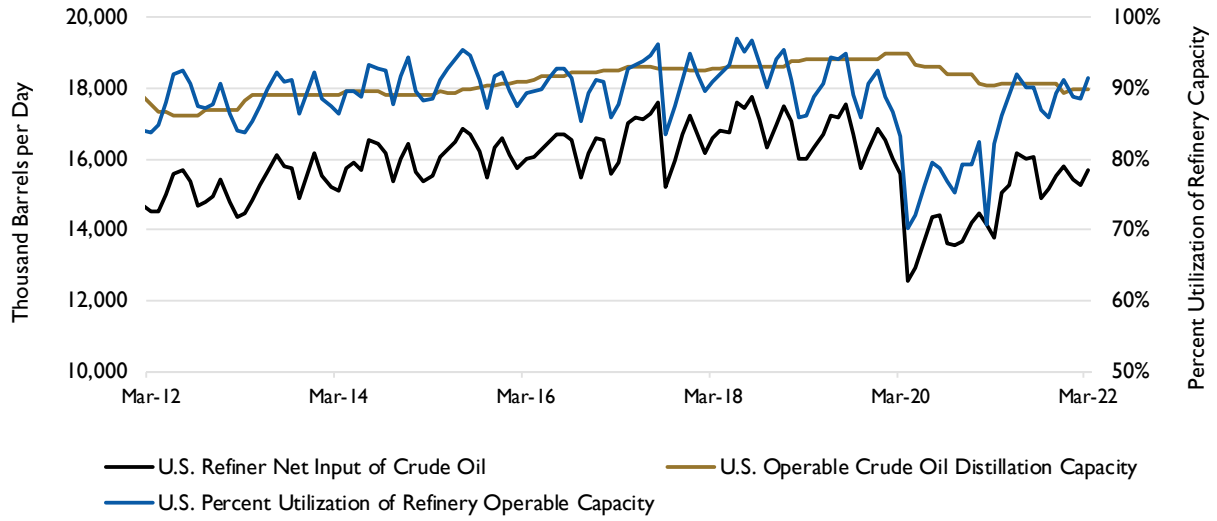
U.S. Refinery Volumes and Wholesale Prices of Petroleum Products (Annual Average) (6)



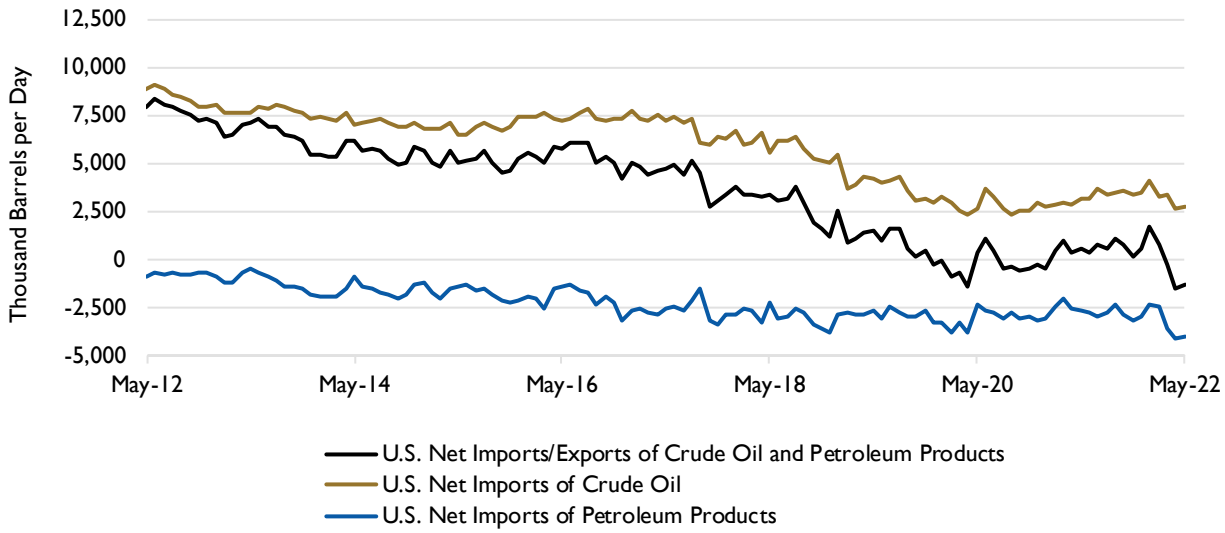
DATA CENTER

OIL

U.S. Crude Oil Refinery Input, Distillation Capacity and Refinery Utilization (Monthly Average) (7)



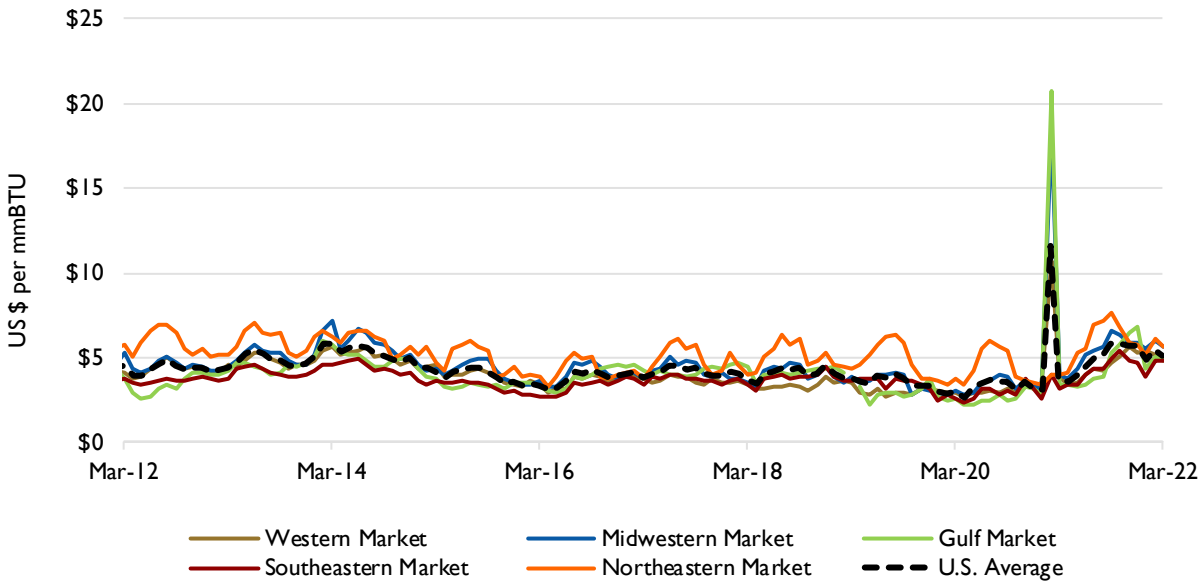
U.S. Crude Oil and Petroleum Products Imports and Exports (Monthly Average) (8)



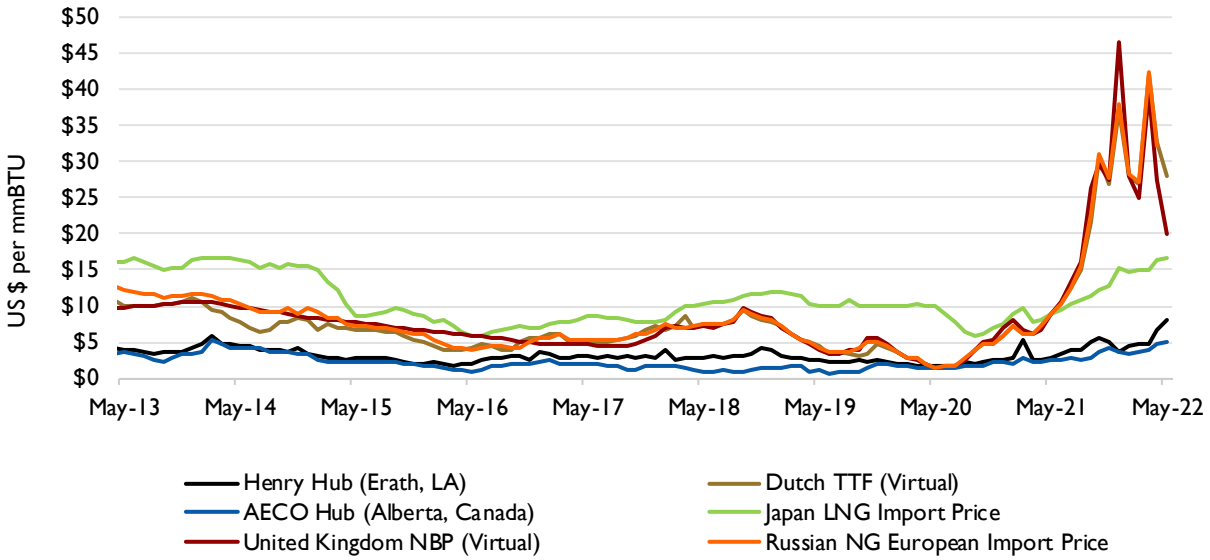
DATA CENTER

NATURAL GAS

DOMESTIC NATURAL GAS CITYGATE PRICES PER REGION (MONTHLY AVERAGE) (9)



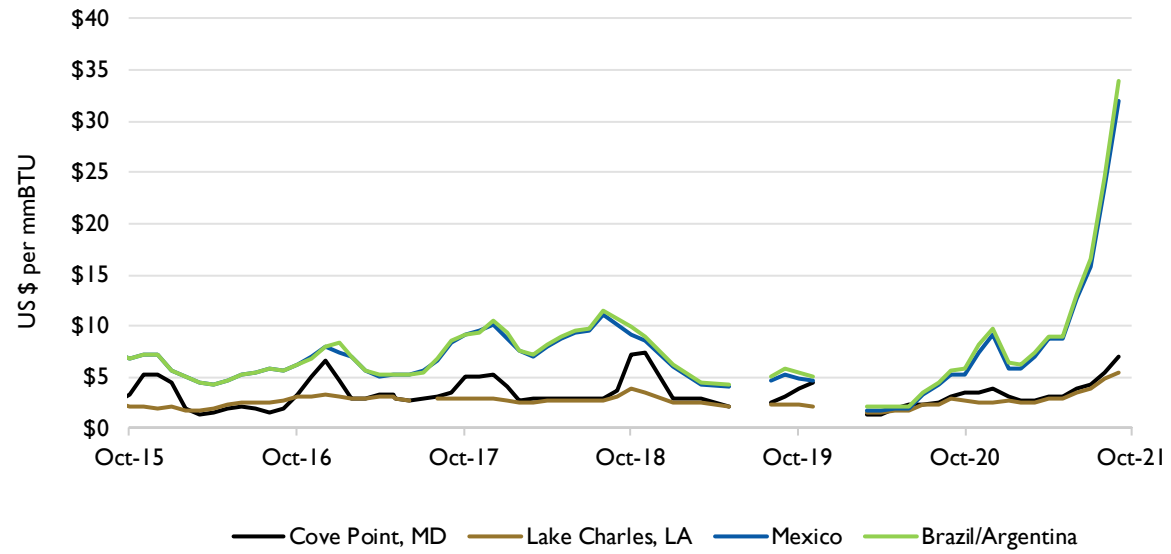
INTERNATIONAL NATURAL GAS PRICES (MONTHLY AVERAGE) (10)



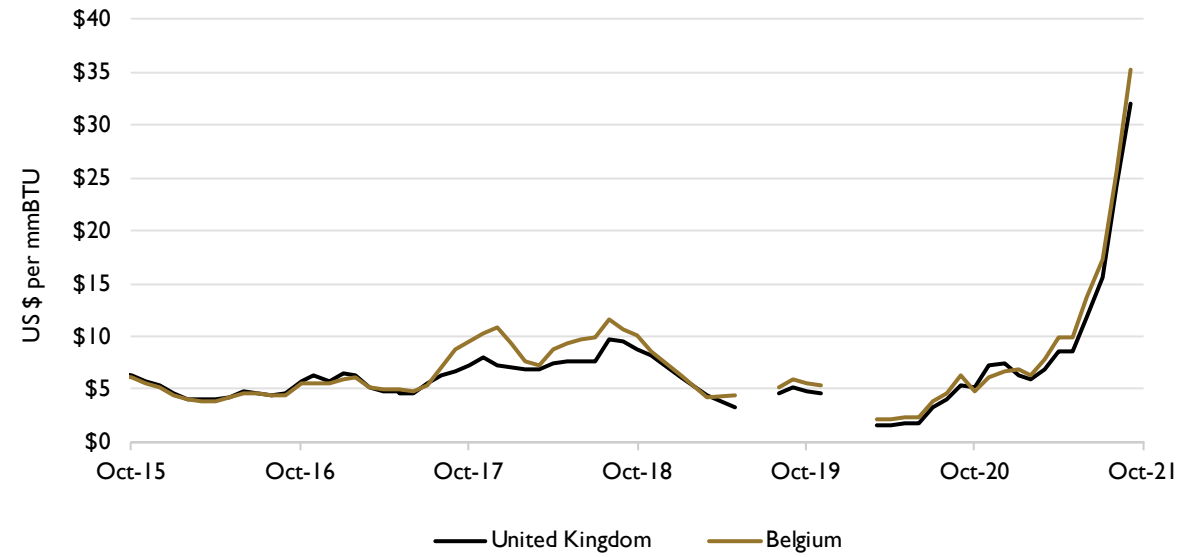
DATA CENTER

NATURAL GAS

AMERICAS LIQUEFIED NATURAL GAS PRICES (MONTHLY AVERAGE) (11)



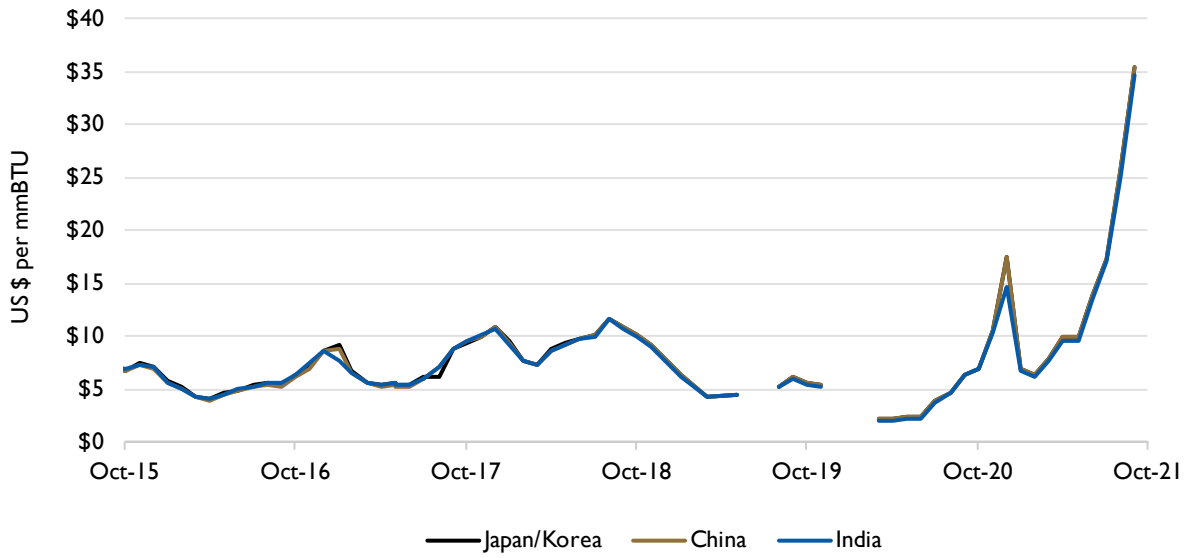
WESTERN EUROPE LIQUEFIED NATURAL GAS PRICES (MONTHLY AVERAGE) (12)



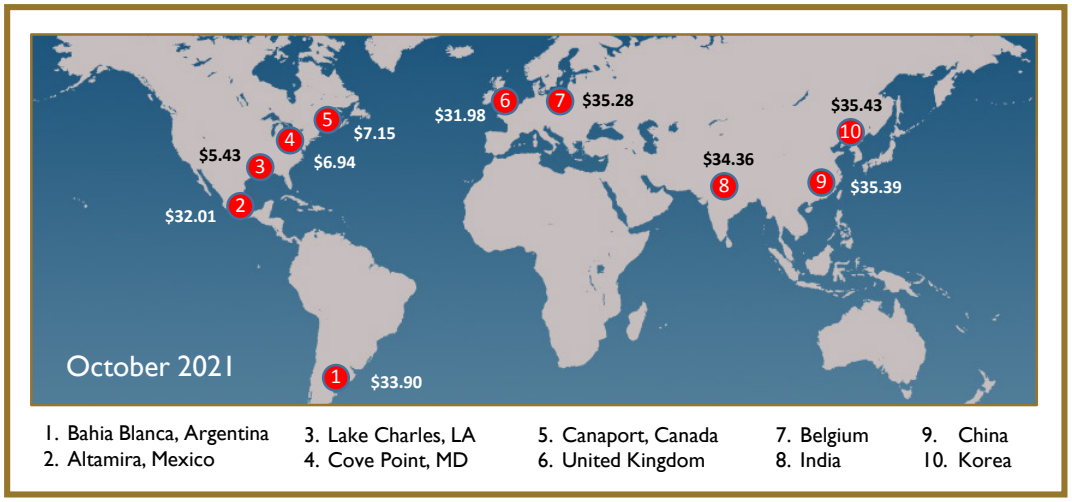
DATA CENTER

NATURAL GAS

ASIA LIQUEFIED NATURAL GAS PRICES (MONTHLY AVERAGE) (13)



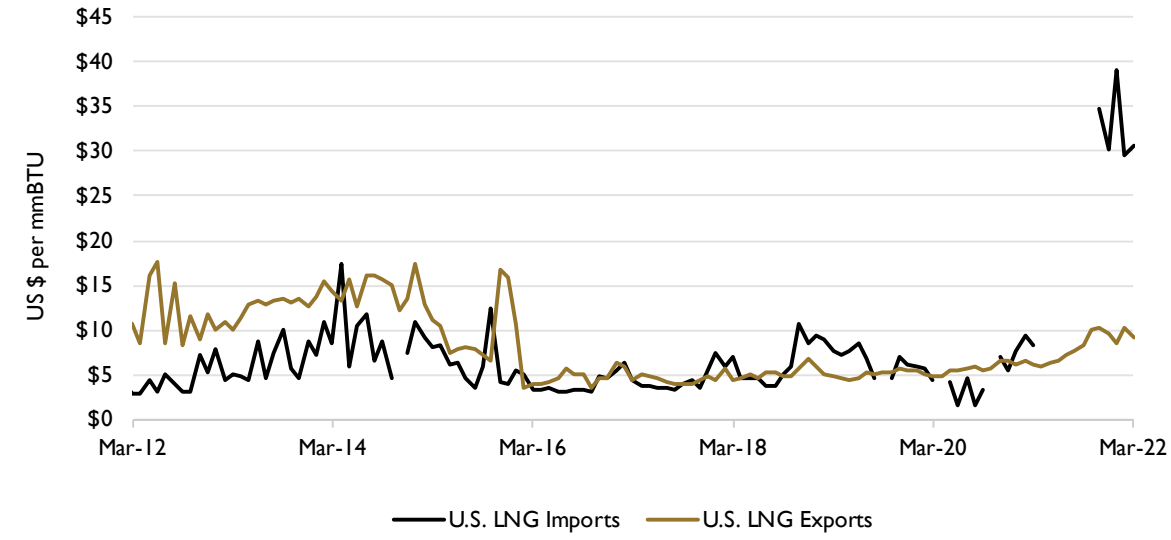
WORLD LIQUEFIED NATURAL GAS PRICES MAP (MONTHLY AVERAGE) (14)



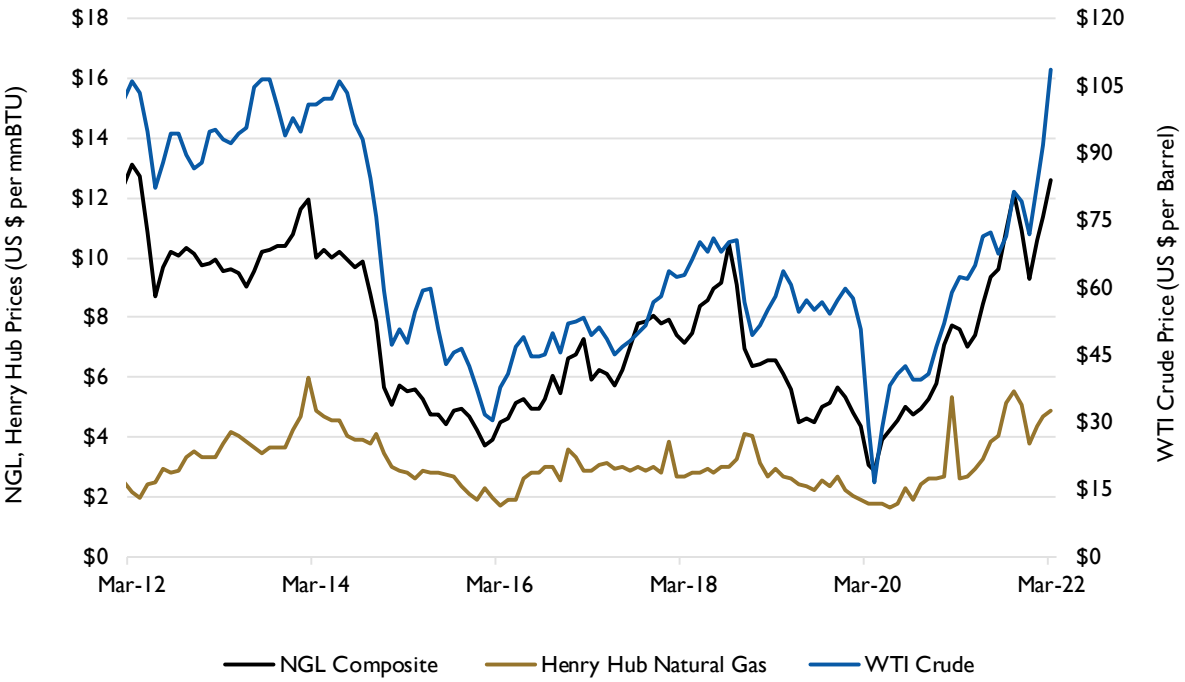
DATA CENTER

NATURAL GAS

U.S. IMPORT / EXPORT LIQUEFIED NATURAL GAS PRICES (MONTHLY AVERAGE) (15)



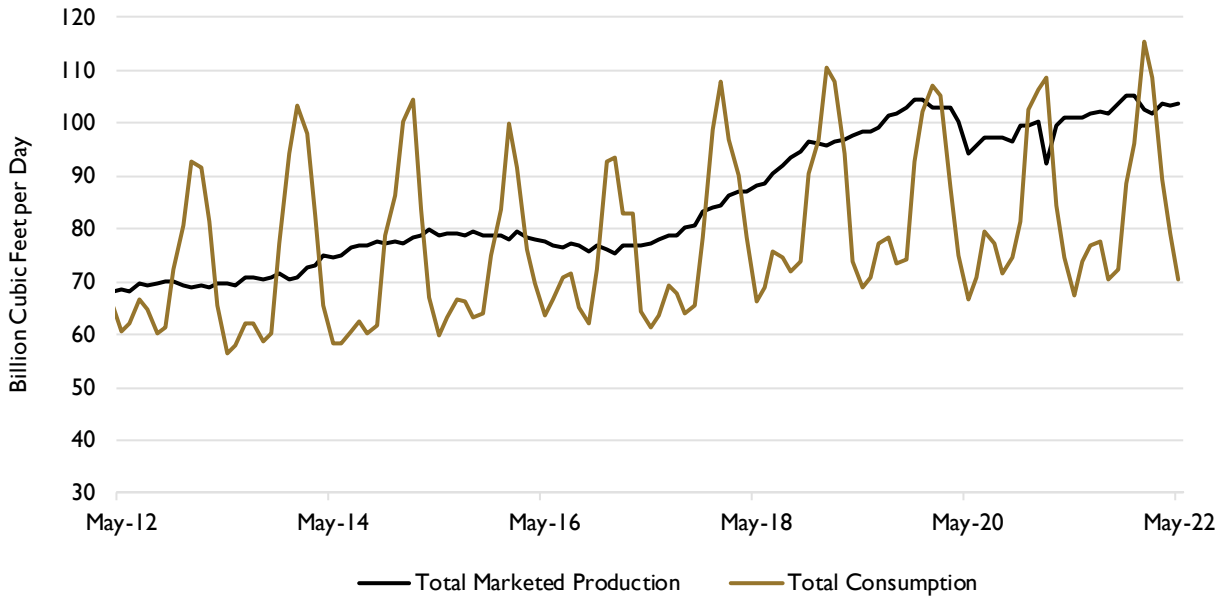
NATURAL GAS PLANT LIQUIDS PRICES (MONTHLY AVERAGE) (16)



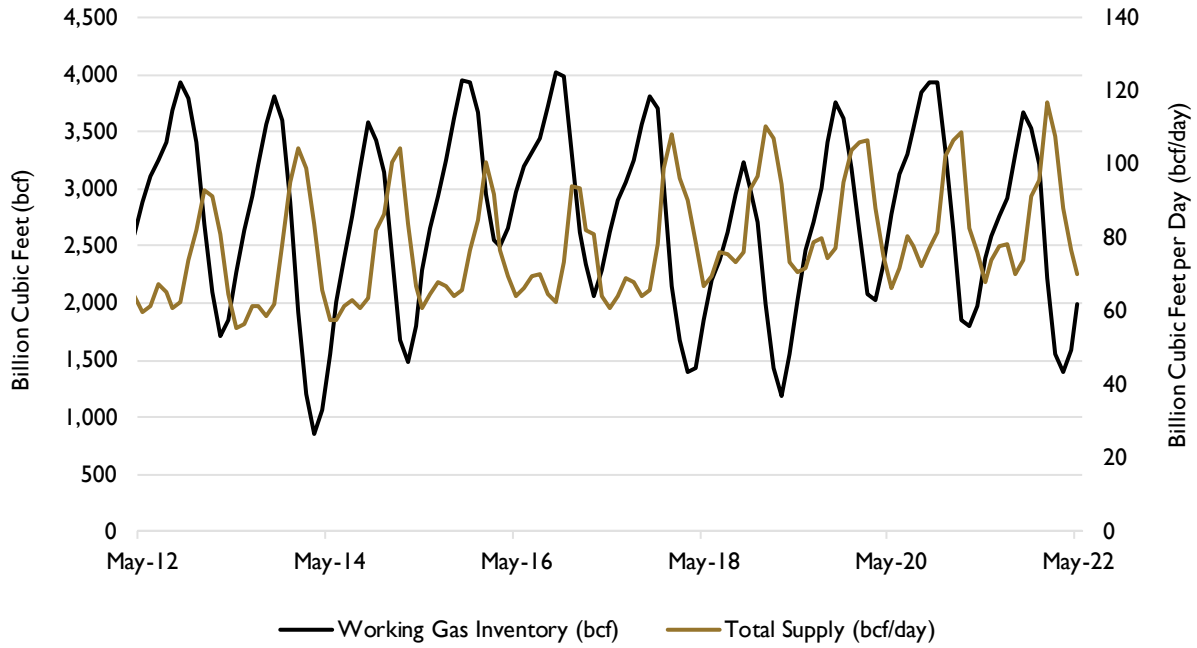
DATA CENTER

NATURAL GAS

U.S. Natural Gas Production and Consumption (Monthly) (17)



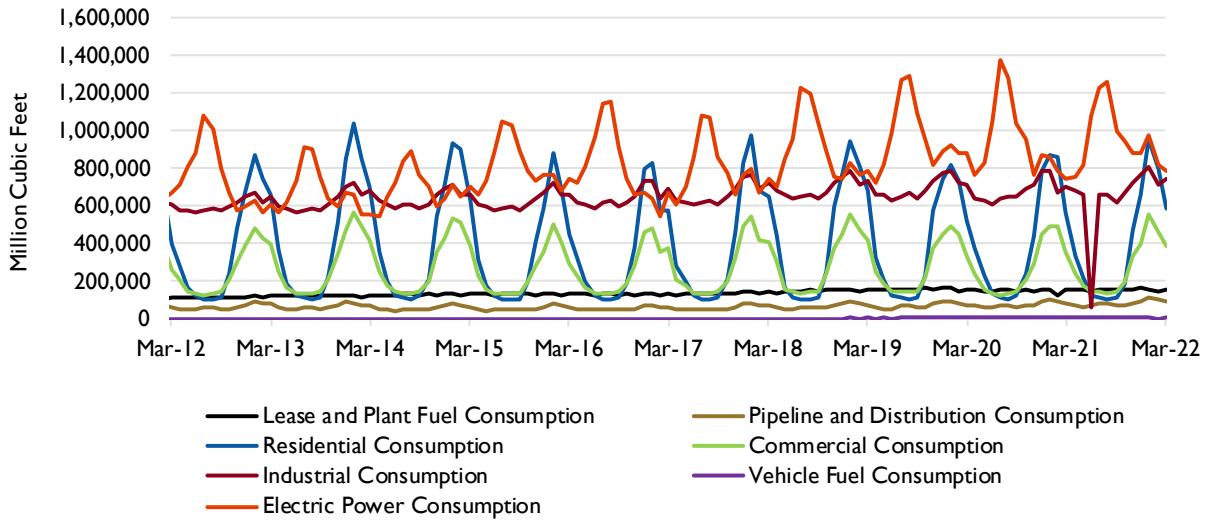
U.S. Natural Gas Supply and Inventory (Monthly) (18)



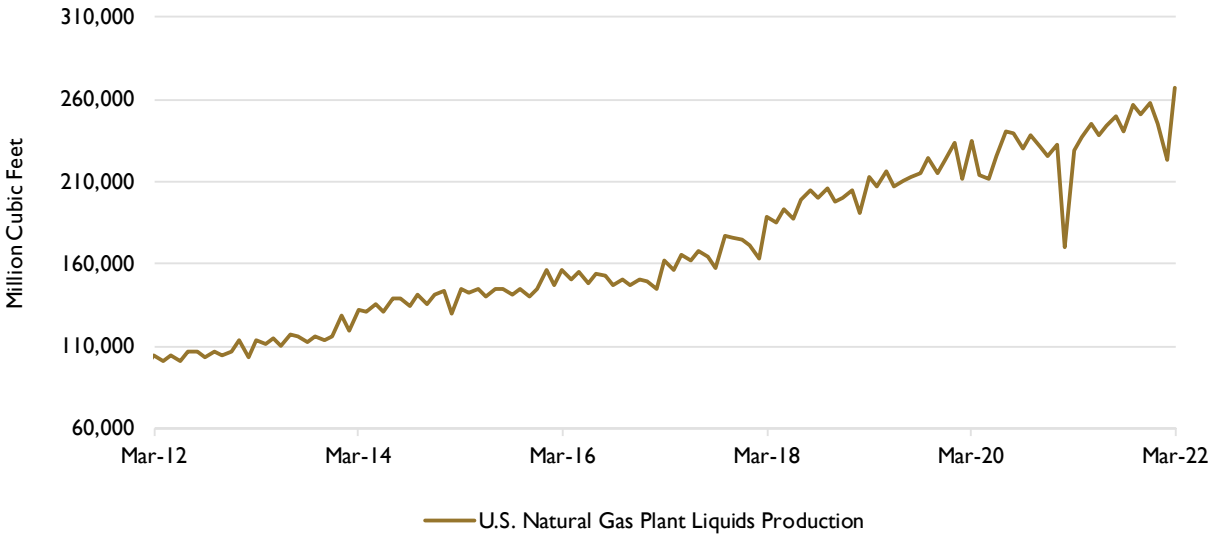
DATA CENTER

NATURAL GAS

U.S. Natural Gas Consumption by End Use (Monthly) (19)



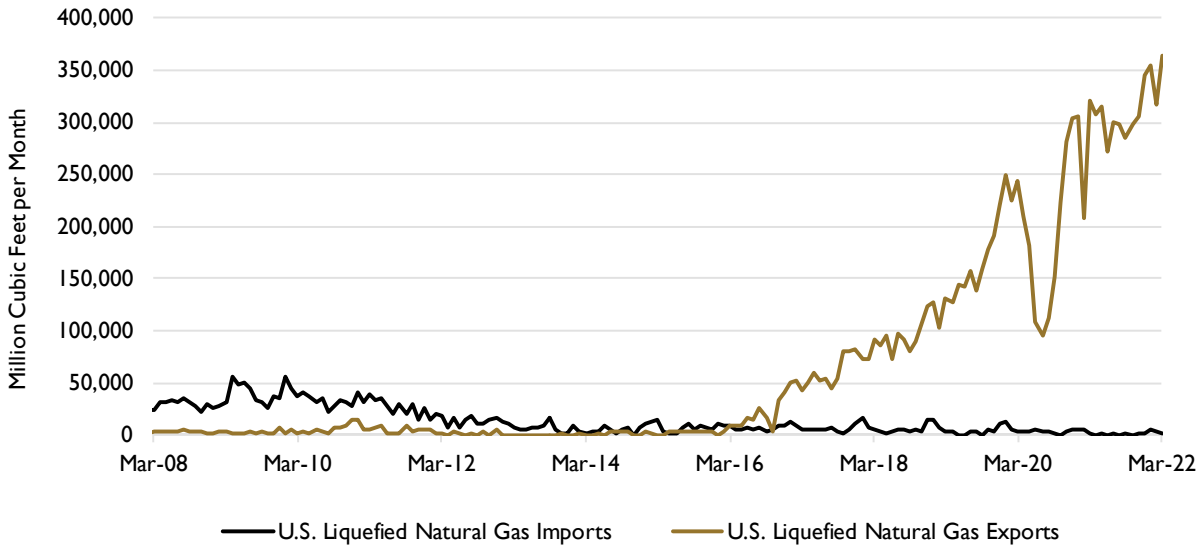
U.S. Natural Gas Plant Liquids Production (Monthly) (20)



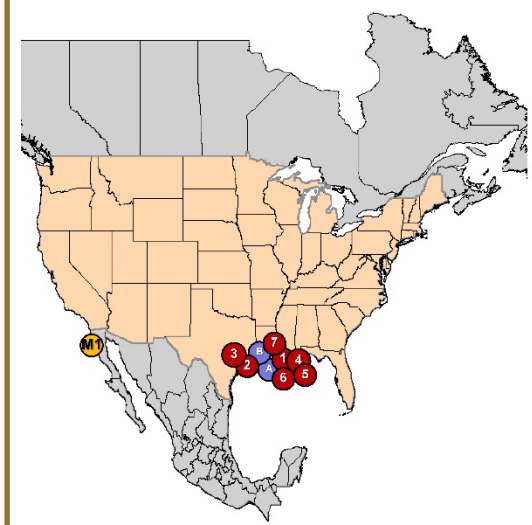
DATA CENTER

NATURAL GAS

U.S. LIQUEFIED NATURAL GAS IMPORT AND EXPORT VOLUMES (MONTHLY) (21)



NORTH AMERICAN LNG EXPORT TERMINALS – *PROPOSED* (22)



UNITED STATES

PROPOSED TO FERC
Pending Applications:
1. **Cameron Parish, LA:** 1.18 Bcfd (Commonwealth, LNG) (CP19-502)
2. **Port Arthur, TX:** 1.86 Bcfd (Sempra - Port Arthur LNG Trains 3 & 4) (CP20-55)
3. **Freeport, TX:** 0.24 Bcfd (Freeport LNG uprate) (CP21-470
4. **Cameron Parish, LA:** 1.45 Bcfd (Venture Global CP2 Blocks 1-9) (CP22-21)
5. **Cameron Parish, LA:** .057 Bcfd (Venture Global Calcasieu Pass) (CP22-25)
6. **Hackberry, LA:** -0.45 Bcfd (Sempra - Cameron LNG Vacate T5 & modify T4) (CP22-41)
7. **Plaquemines Parish, LA:** 0.45 Bcfd (Venture Global Plaquemines) (CP22-92)

Projects in Pre-filing:
A. LaFourche Parish, LA: 0.65 Bcfd (Port Fourchon LNG) (PF17-9)
B. Plaquemines Parish, LA: 2.76 Bcfd (Delta LNG - Venture Global) (PF19-4)

CANADA
For Canadian LNG Import and Proposed Export Facilities:

https://www.nrcan.gc.ca/energy/natural-gas/5683

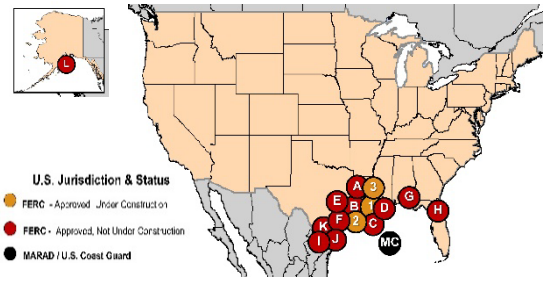
MEXICO (Projects in advanced planning/development stages)
M1. Baja California, MX: 0.4 Bcfd (Sempra – Energía Costa Azul Phase 1)

As of May 24, 2022

DATA CENTER

NATURAL GAS

NORTH AMERICAN LNG IMPORT/EXPORT TERMINALS – *APPROVED* (23)



Import Terminals (Not Shown on Map)

UNITED STATES As of May 24, 2022

APPROVED - UNDER CONSTRUCTION - FERC
None

APPROVED – NOT UNDER CONSTRUCTION – FERC
1. Kenai, AK: .007 Bcfd (Trans-Foreland – Kenai LNG) (CP15-521)

APPROVED - NOT UNDER CONSTRUCTION - MARAD/Coast Guard
A. Gulf of Mexico: 1.0 Bcfd (Main Pass Energy Hub)
B. Gulf of Mexico: 1.4 Bcfd (TORP Technology-Bienville LNG)

CANADA
For Canadian LNG Import and Proposed Export Facilities go to:
https://www.nrcan.gc.ca/energy/natural-gas/5683

Export Terminals (Shown on Map)

UNITED STATES As of May 24, 2022

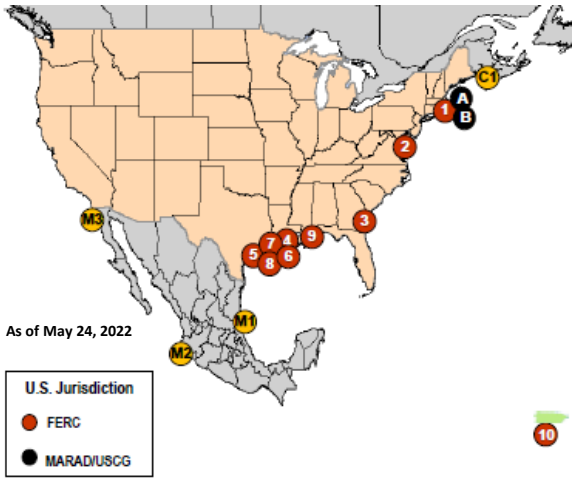
FERC – APPROVED, UNDER CONSTRUCTION
1. Cameron Parish, LA: 0.92 Bcfd (Venture Global Calcasieu Pass Units 5-9) (CP15-550)
2. Sabine Pass, TX: 2.26 Bcfd (ExxonMobil – Golden Pass) (CP14-517, CP20-459)
3. Plaquemines Parish, LA: 3.40 Bcfd (Venture Global Plaquemines) (CP17-66)

FERC – APPROVED, NOT UNDER CONSTRUCTION
A. Lake Charles, LA: 2.2 Bcfd (Lake Charles LNG) (CP14-120)
B. Lake Charles, LA: 1.186 Bcfd (Magnolia LNG) (CP14-347)
C. Hackberry, LA: 1.41 Bcfd (Sempra - Cameron LNG Trains 4 & 5) (CP15-560)
D. Calcasieu Parish, LA: 4.0 Bcfd (Driftwood LNG) (CP17-117)
E. Port Arthur, TX: 1.86 Bcfd (Sempra - Port Arthur LNG Trains 1 & 2) (CP17-20)
F. Freeport, TX: 0.72 Bcfd (Freeport LNG Dev Train 4) (CP17-470)
G. Pascagoula, MS: 1.5 Bcfd (Gulf LNG Liquefaction) (CP15-521)
H. Jacksonville, FL: 0.132 Bcf/d (Eagle LNG Partners) (CP17-41)
I. Brownsville, TX: 0.55 Bcfd (Texas LNG Brownsville) (CP16-116)
J. Brownsville, TX: 3.6 Bcfd (Rio Grande LNG – NextDecade) (CP16-454)
K. Corpus Christi, TX: 1.86 Bcfd (Cheniere Corpus Christi Stage III) (CP18-512)
L. Nikiski, AK: 2.63 Bcfd (Alaska Gasline) (CP17-178)

MARAD/USCG – APPROVED, NOT UNDER CONSTRUCTION
MC. Gulf of Mexico: 1.8 Bcfd (Delfin LNG)

CANADA - LNG IMPORT AND PROPOSED EXPORT FACILITIES
https://www.nrcan.gc.ca/energy/natural-gas/5683

NORTH AMERICAN LNG IMPORT/EXPORT TERMINALS – *EXISTING* (24)



★ Authorized to re-export delivered LNG
★ Added liquefaction and export capabilities (also shown on the LNG Export Terminals Existing map)

Import Terminals (Shown on Map)

UNITED STATES
1. Everett, MA: 1.035 Bcfd (GDF SUEZ - DOMAC)
2. Cove Point, MD: 1.8 Bcfd (Dominion - Cove Point LNG) ★
3. Elba Island, GA: 1.6 Bcfd (El Paso - Southern LNG) ★
4. Lake Charles, LA: 2.1 Bcfd (Southern Union – Corpus Christi LNG) ★
5. Freeport, TX: 1.5 Bcfd (Cheniere/Freeport LNG Dev.) ★★
6. Sabine, LA: 4.0 Bcfd (Cheniere/Sabine Pass LNG) ★★
7. Hackberry, LA: 1.8 Bcfd (Sempra - Cameron LNG) ★
8. Sabine Pass, TX: 2.0 Bcfd (ExxonMobil – Golden Pass) (Phase I & II)
9. Pascagoula, MS: 1.5 Bcfd (El Paso/Crest/Sonangol - Gulf LNG Energy)
10. Peñuelas, PR: 0.3 Bcfd (EcoElectrica)

MARAD/USCG
A. Offshore MA: 0.8 Bcfd (Excelerate Energy – Northeast Gateway)
B. Offshore MA: 0.4 Bcfd (GDF SUEZ – Neptune LNG)

CANADA
C1. Saint John, NB: 1.0 Bcfd (Repsol/Fort Reliance - Canaport LNG)

MEXICO
M1. Altamira, Tamulipas: 0.7 Bcfd (Shell/Total/Mitsui – Altamira LNG)
M2. Baja California, MX: 1.0 Bcfd (Sempra – Energia Costa Azul)
M3. Manzanillo, MX: 0.5 Bcfd (KMS GNL de Manzanillo)

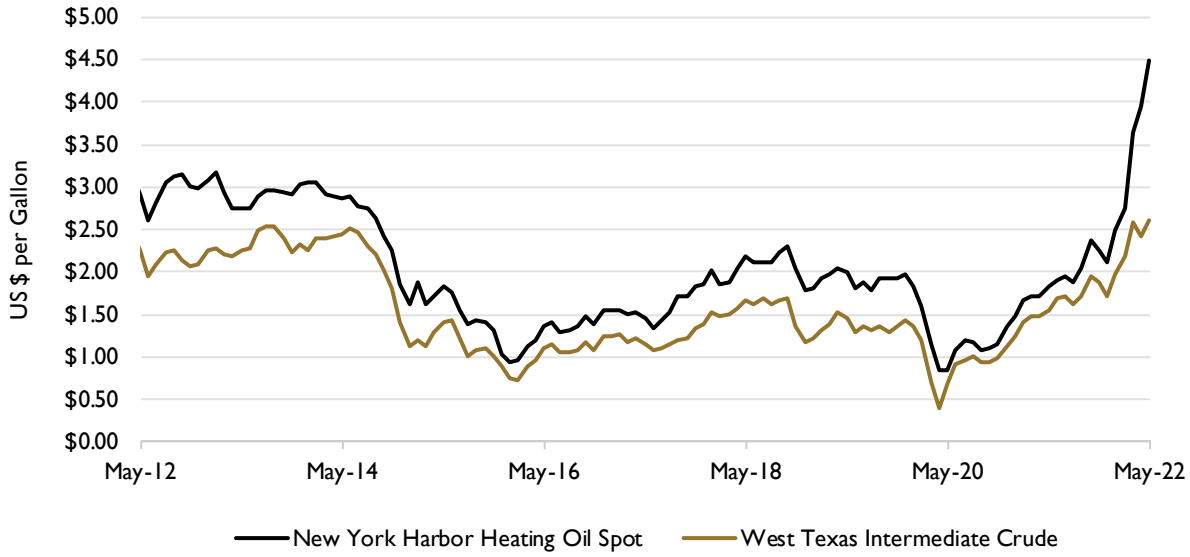
Export Terminals (Not Shown on Map)

1. Kenai, AK: 0.2 Bcfd (Trans-Foreland)
2. Sabine, LA: 4.55 Bcfd (Cheniere/Sabine Pass LNG – Trains 1-6)
3. Cove Point, MD: 0.82 Bcfd (Dominion–Cove Point LNG)
4. Corpus Christi, TX: 2.40 Bcfd (Cheniere – Corpus Christi LNG Trains 1-3)
5. Hackberry, LA: 2.15 Bcfd (Sempra–Cameron LNG, Trains 1-3)
6. Elba Island, GA: 0.35 Bcd (Southern LNG Company Units 1-10)
7. Freeport, TX: 2.14 Bcfd (Freeport LNG Dev/Freeport LNG Expansion/FLNG Liquefaction Trains 1-3)
8. Cameron Parish, LA: 0.74 Bcfd (Venture Global Calcasieu Pass Units 1-4)

DATA CENTER

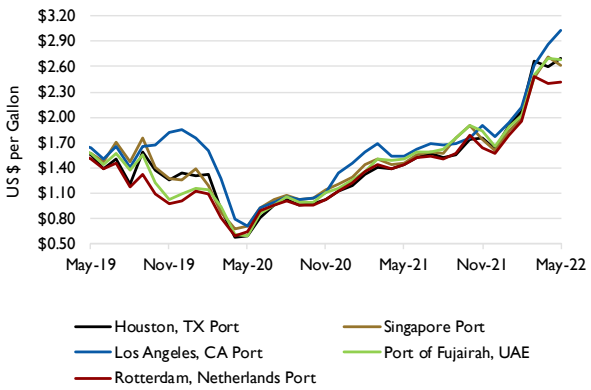
PROPANE AND HEATING/FUEL OIL

HEATING OIL PRICES (MONTHLY AVERAGE) (25)

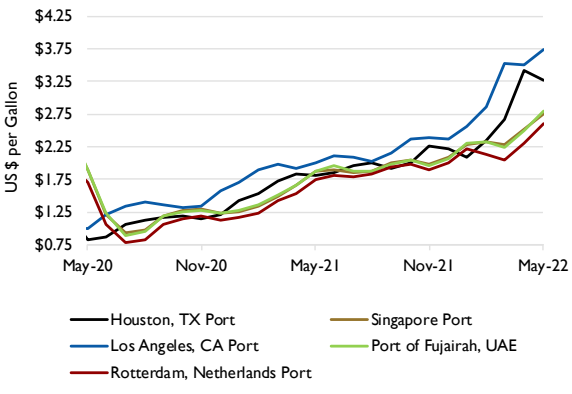


INTERMEDIATE FUEL OIL AKA "BUNKER FUEL" PRICES (MONTHLY AVERAGE) (26)

Intermediate Fuel Oil 380



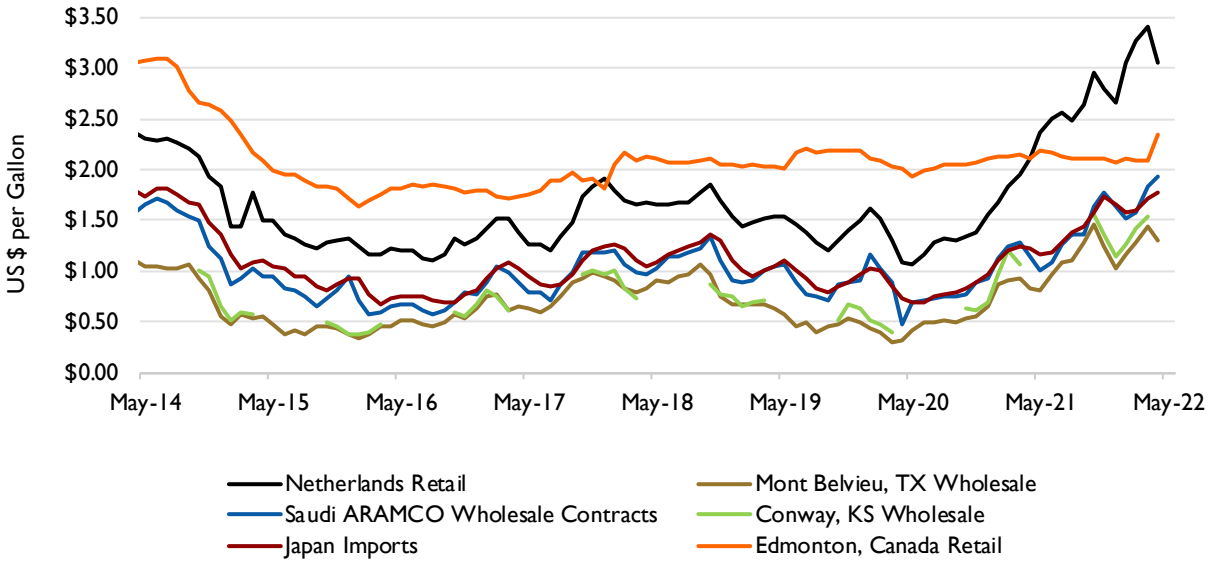
Very Low Sulfur Fuel Oil (VLSFO)



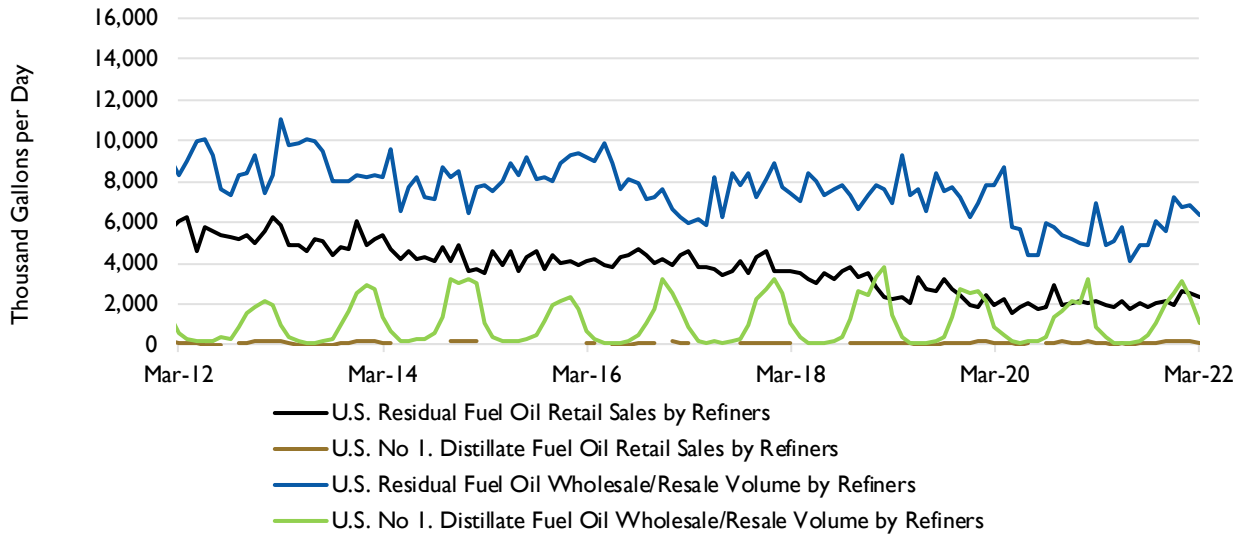
DATA CENTER

PROPANE AND HEATING/FUEL OIL

PROPANE PRICES (MONTHLY AVERAGE) (27)



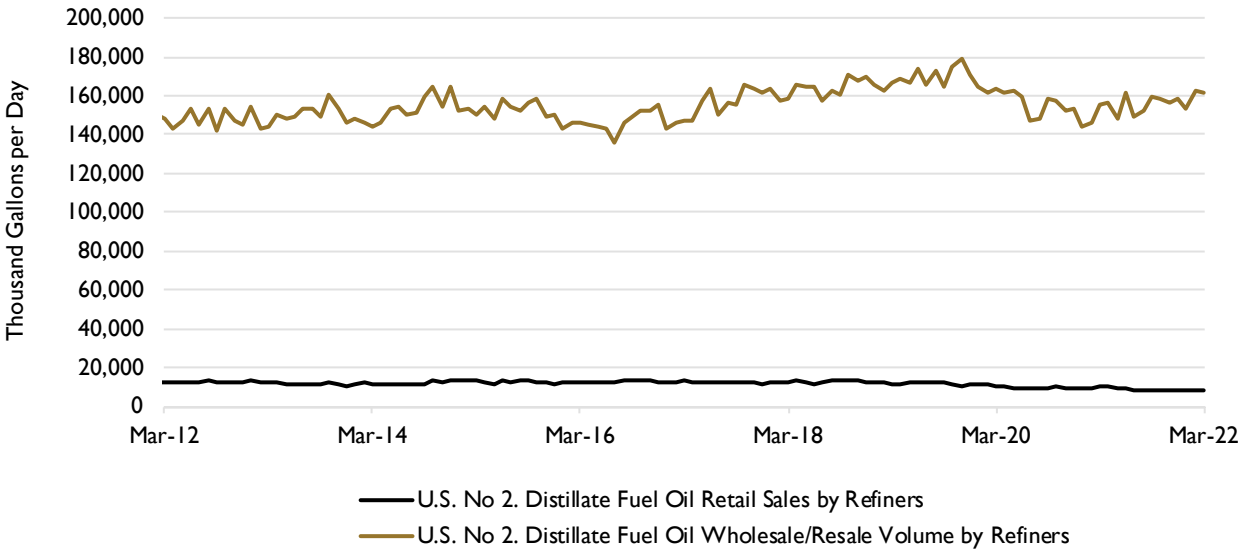
NO. 1 DISTILLATE FUEL OIL, RESIDUAL FUEL OIL WHOLESALE, RETAIL SALES VOLUME BY REFINERS (MONTHLY) (28)



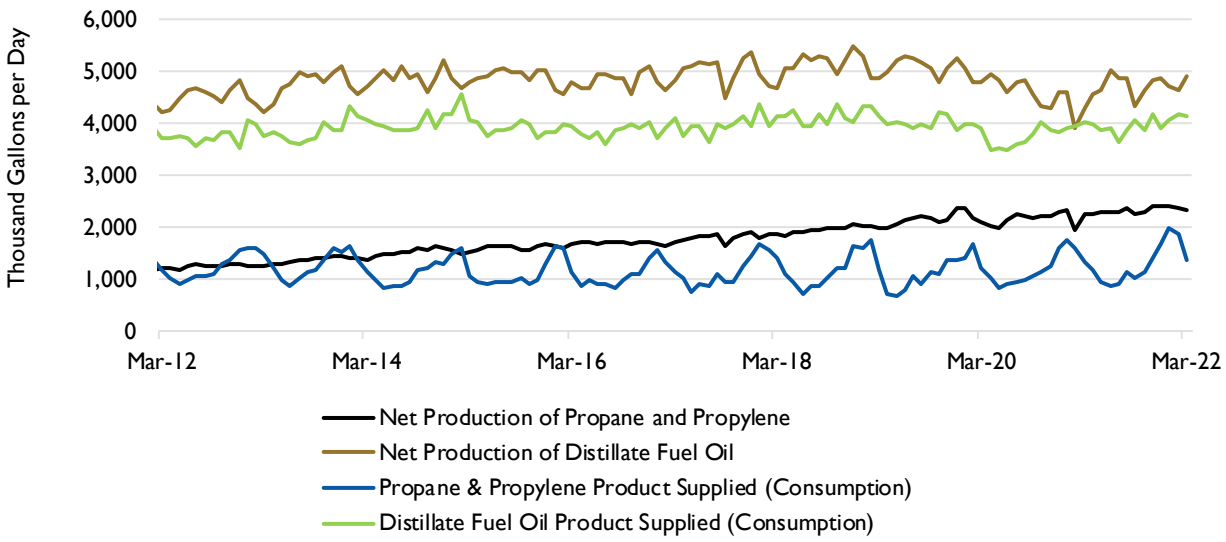
DATA CENTER

PROPANE AND HEATING/FUEL OIL

No. 2 Distillate Fuel Oil Wholesale, Retail Sales Volume by Refiners (Monthly) (29)



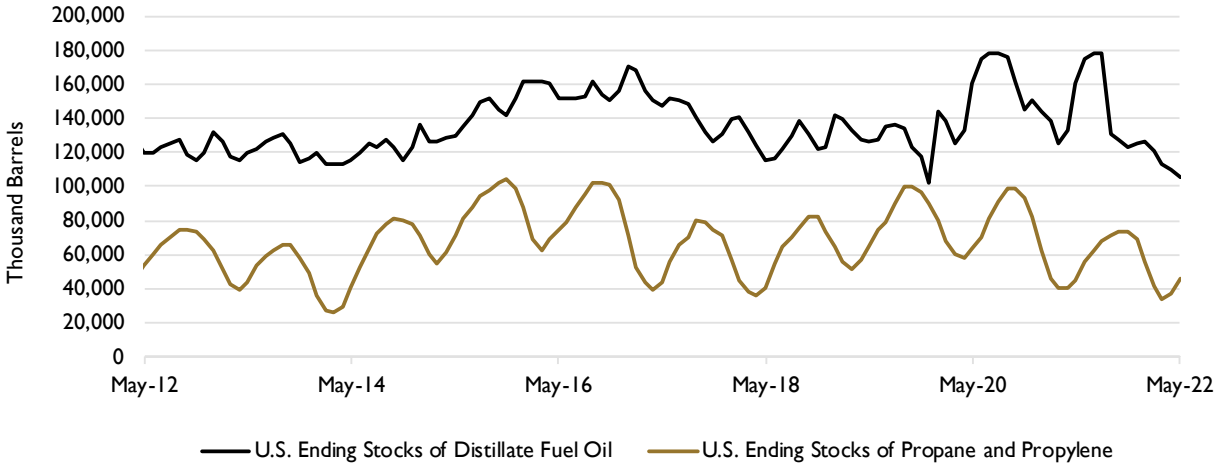
Propane & Propylene and Distillate Fuel Oil Production and Consumption (Monthly) (30)



DATA CENTER

PROPANE AND HEATING/FUEL OIL

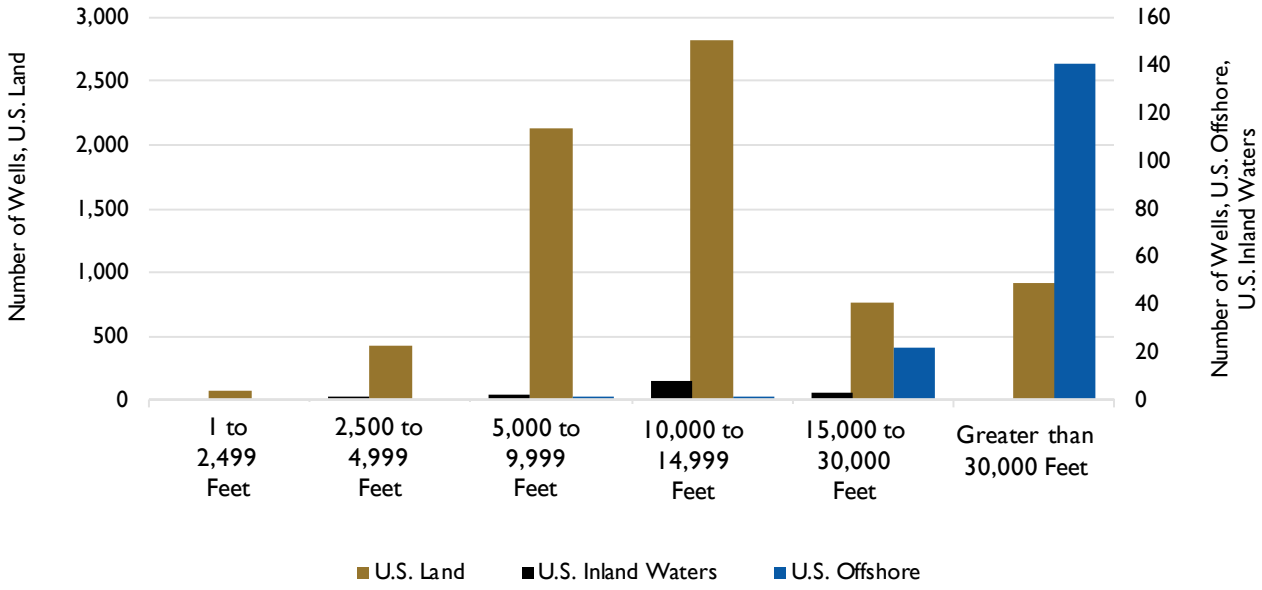
U.S. ENDING STOCKS OF PROPANE & PROPYLENE AND DISTILLATE FUEL OIL (MONTHLY AVERAGE) (31)



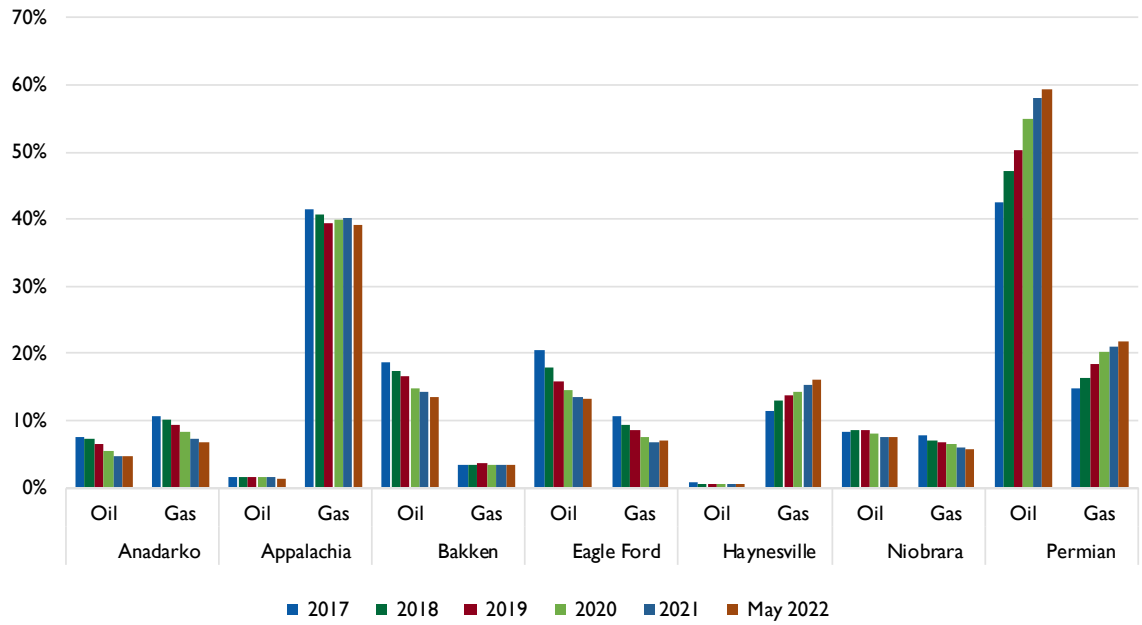
DATA CENTER

DRILLING ACTIVITY

U.S. WELL STARTS BY DEPTH (YEAR TO DATE MAY 31, 2022) (32)



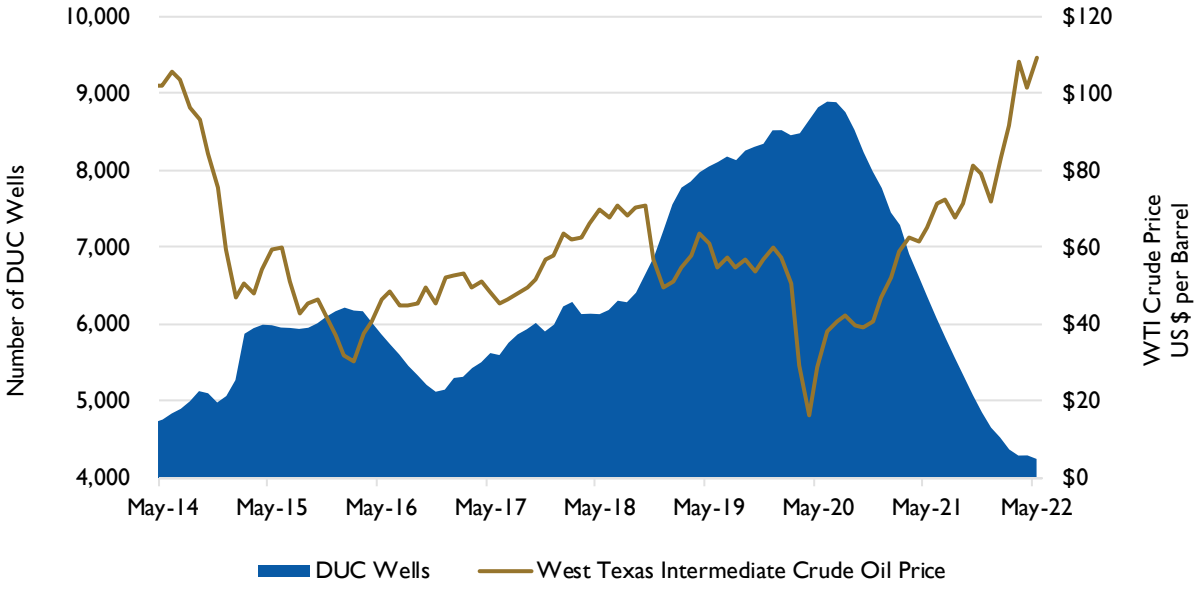
PERCENTAGE OF CRUDE OIL AND NATURAL GAS PRODUCTION PER SHALE REGION (ANNUAL) (33)



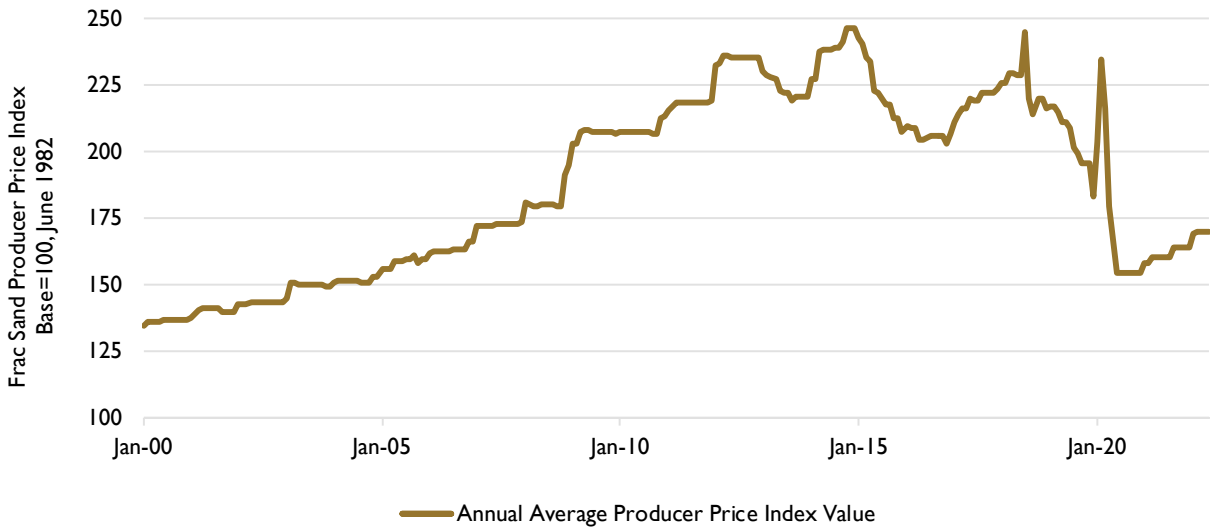
DATA CENTER

DRILLING ACTIVITY

DRILLED BUT UNCOMPLETED (DUC) WELLS VS. CRUDE OIL PRICE (MONTHLY) (34)



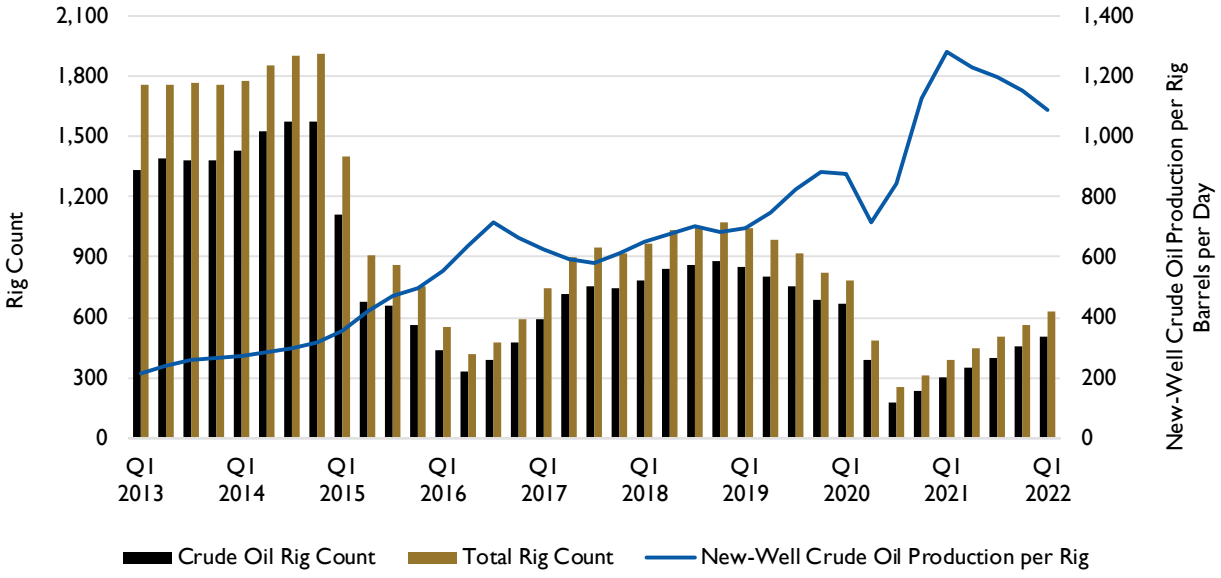
HYDRAULIC FRACTURING SAND PRODUCER PRICE INDEX (MONTHLY) (35)



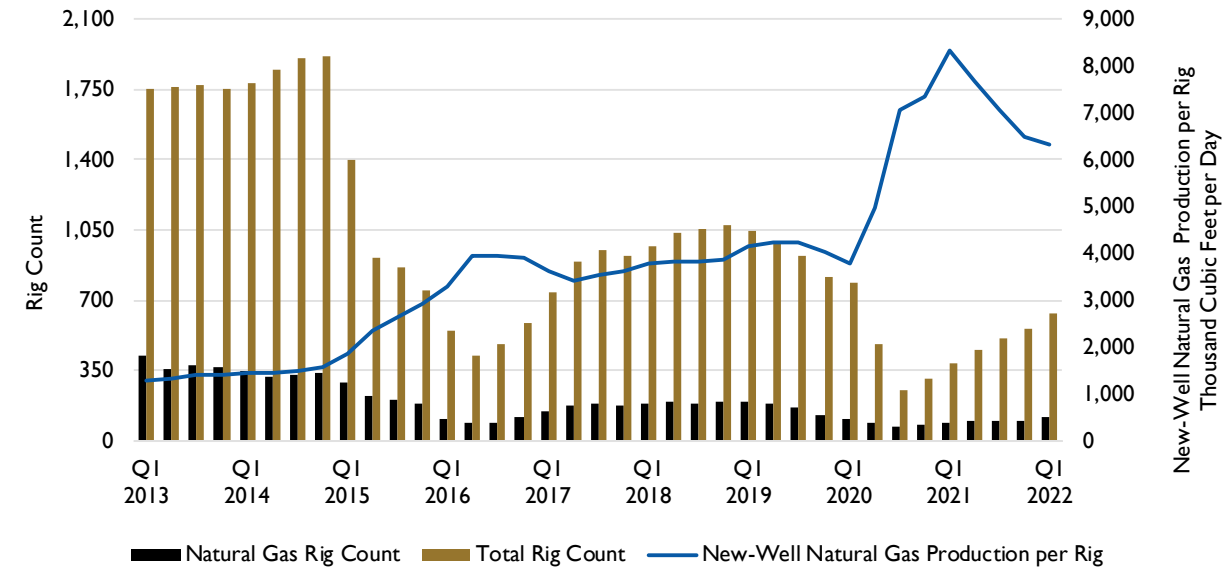
DATA CENTER

DRILLING ACTIVITY

CRUDE OIL PRODUCTION, RIG COUNT AND PRODUCTION PER RIG (QUARTERLY) (36)



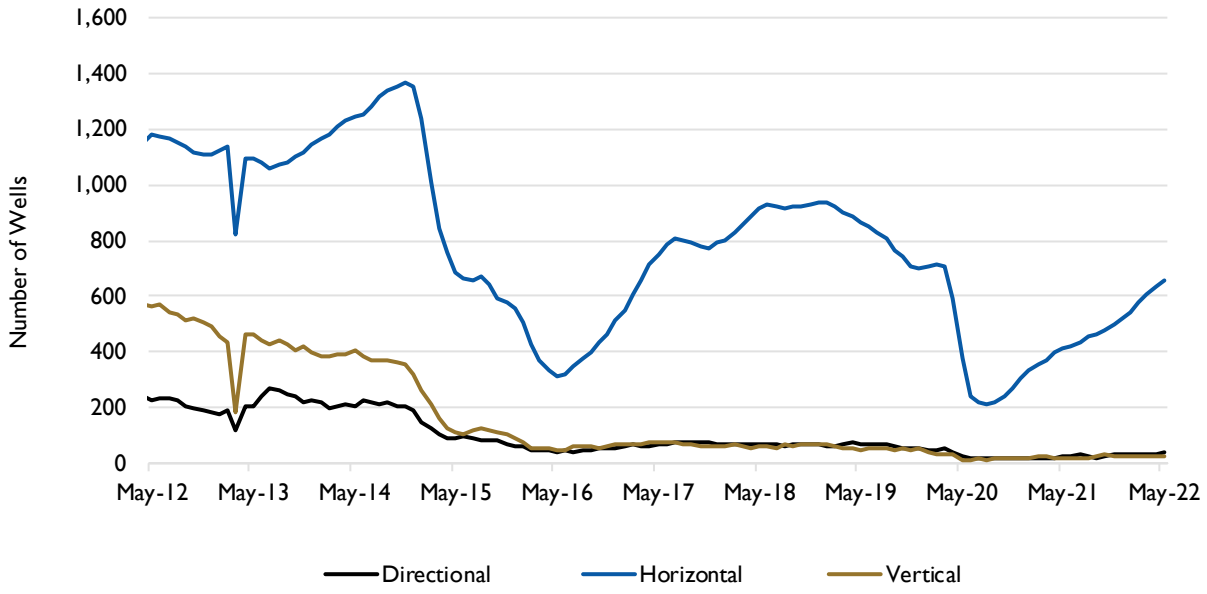
NATURAL GAS PRODUCTION, RIG COUNT AND PRODUCTION PER RIG (QUARTERLY) (37)



DATA CENTER

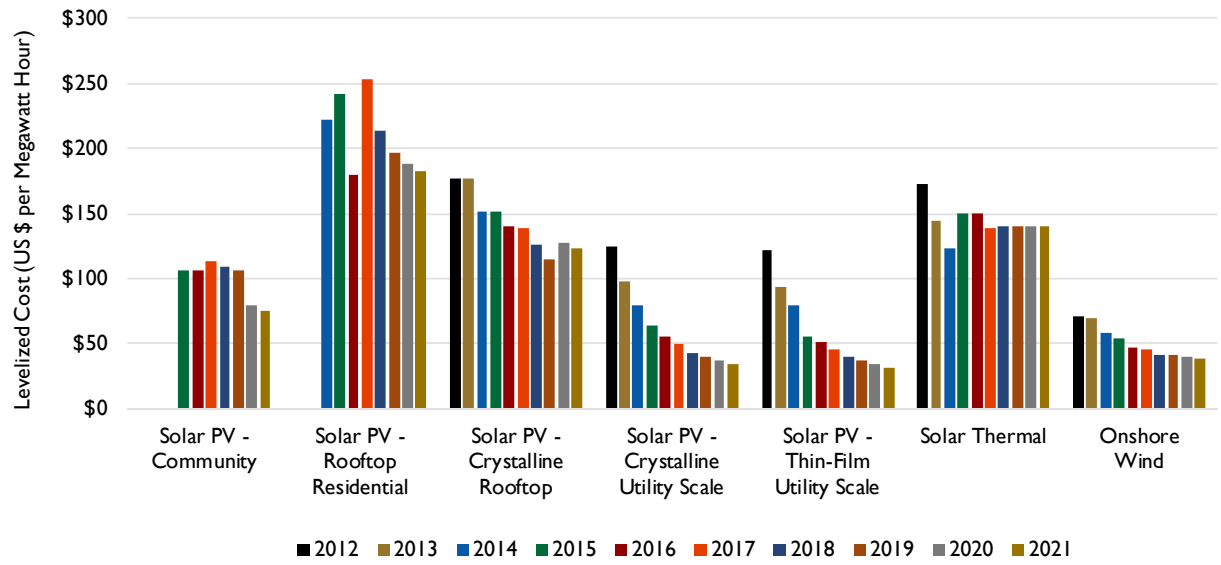
DRILLING ACTIVITY

U.S. DRILLING RIGS BY TYPE (MONTHLY) (38)



RENEWABLES

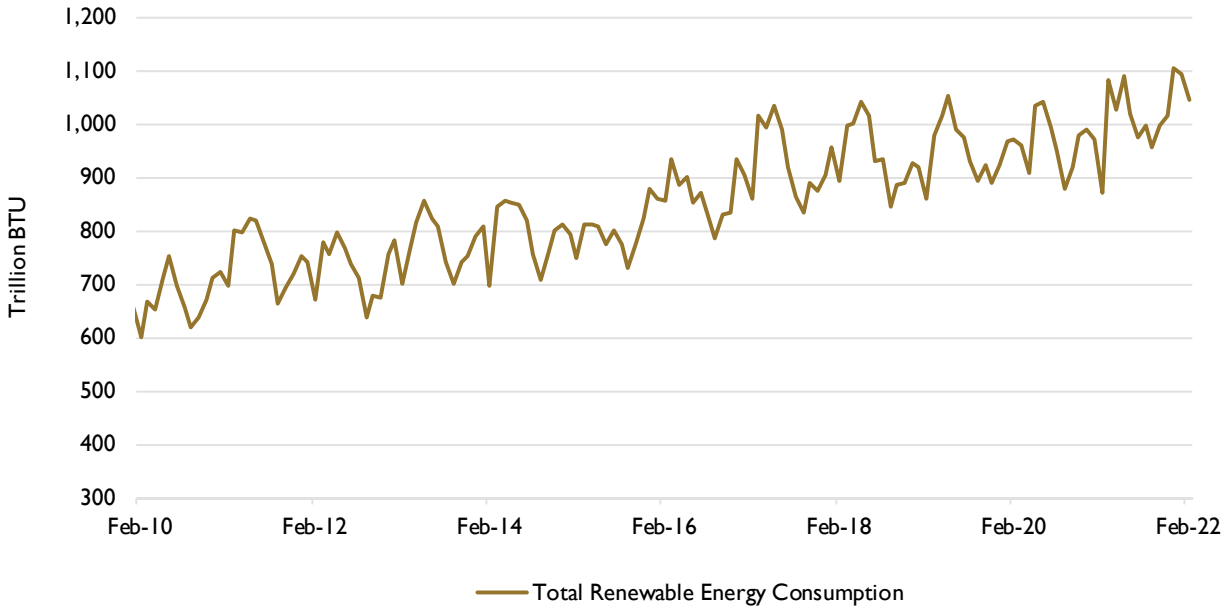
WIND AND SOLAR PRICES (ANNUAL AVERAGE) (39)



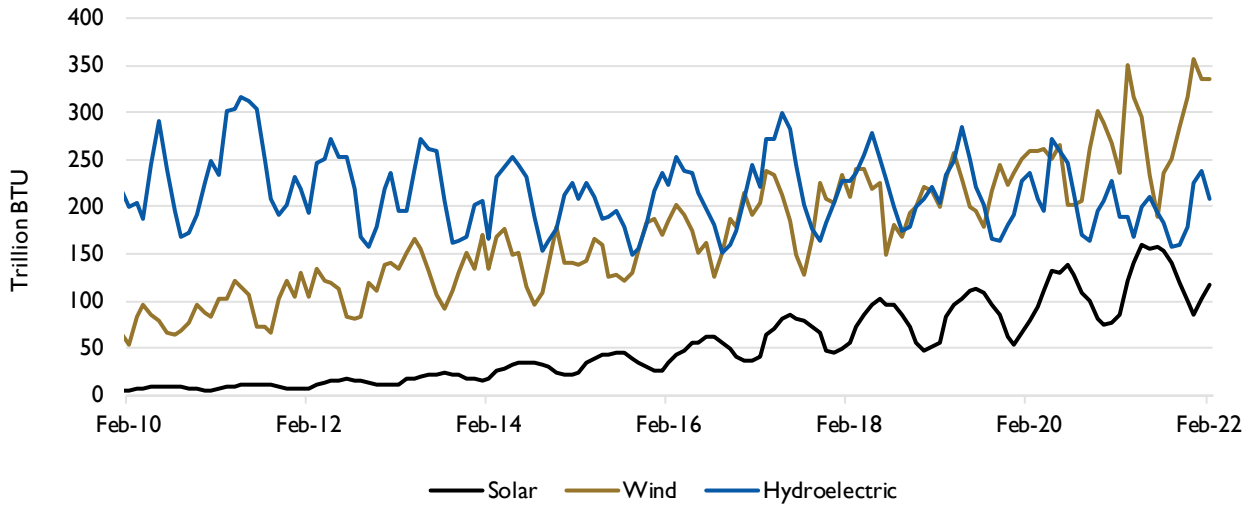
DATA CENTER

RENEWABLES

U.S. TOTAL RENEWABLE ENERGY CONSUMPTION (MONTHLY) (40)



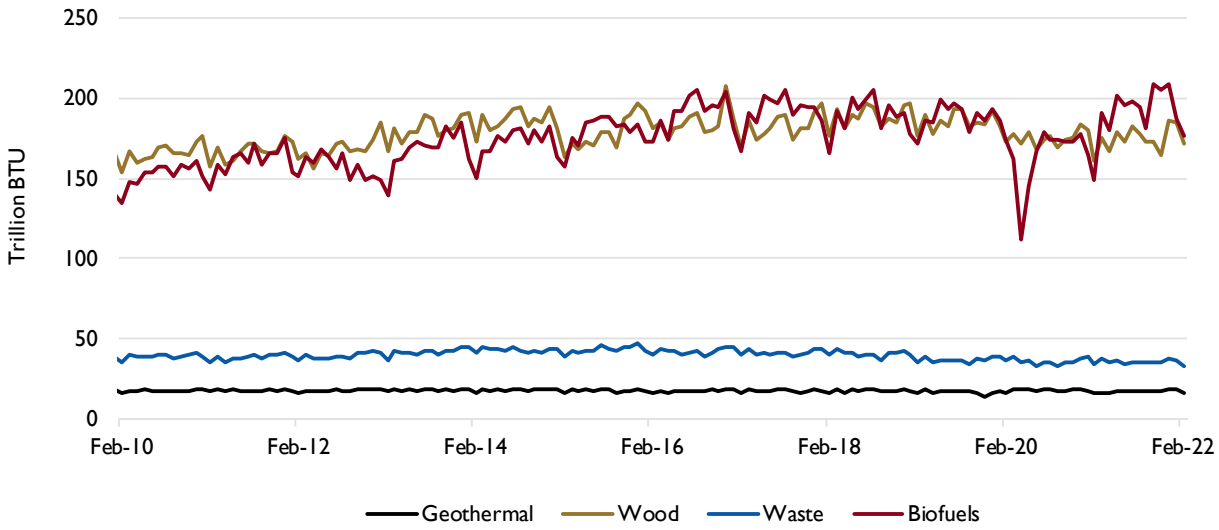
U.S. SOLAR, WIND AND HYRDOELECTRIC ENERGY CONSUMPTION (MONTHLY) (41)



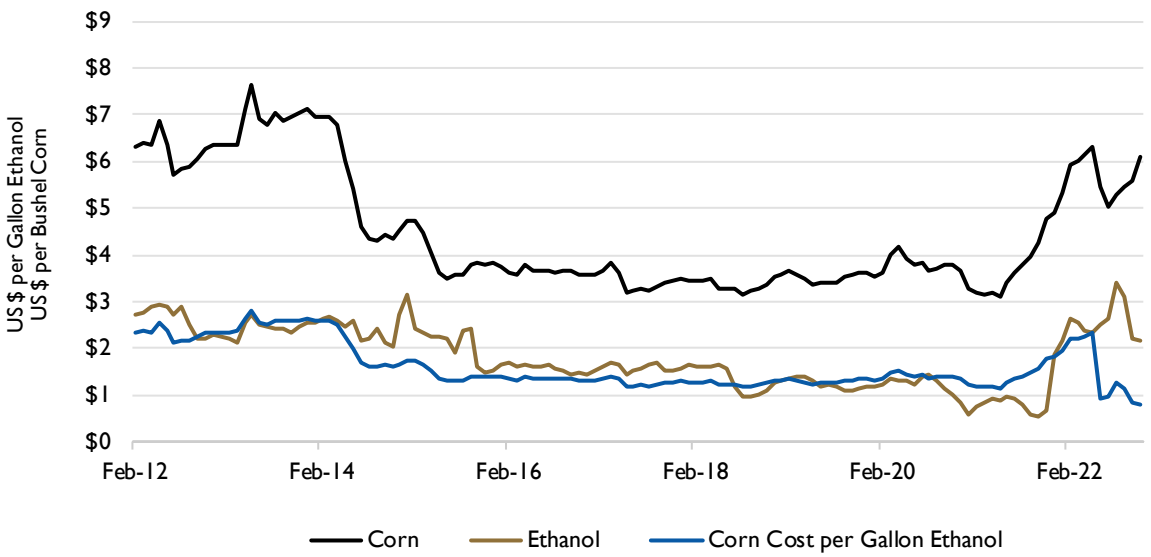
DATA CENTER

RENEWABLES

U.S. WOOD, WASTE, BIOFUELS AND GEOTHERMAL ENERGY CONSUMPTION (MONTHLY) (42)



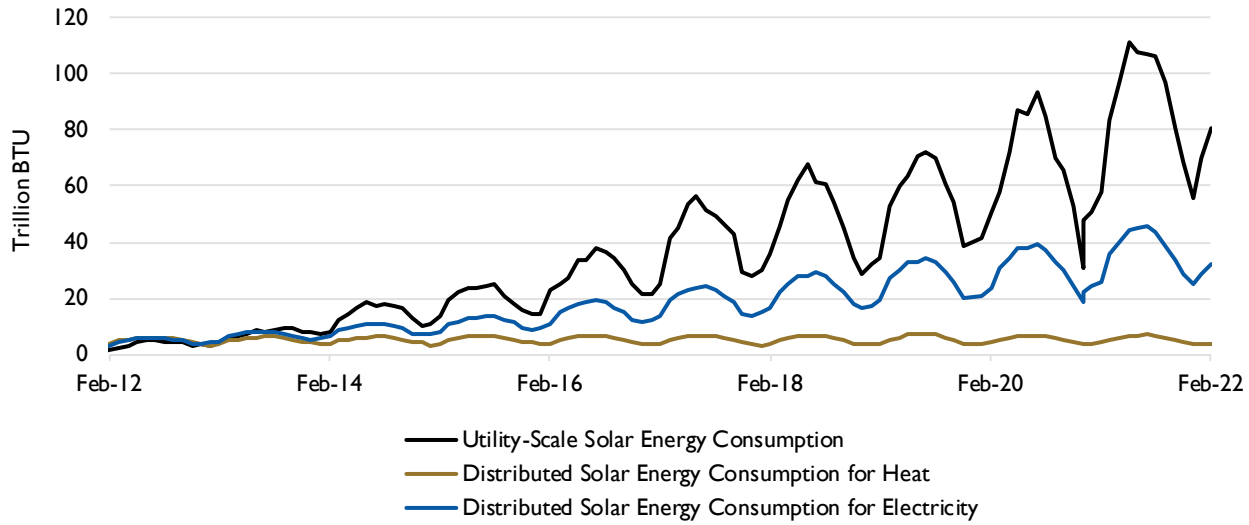
CORN AND ETHANOL PRICES AND CORN COST PER GALLON OF ETHANOL (QUARTERLY) (43)



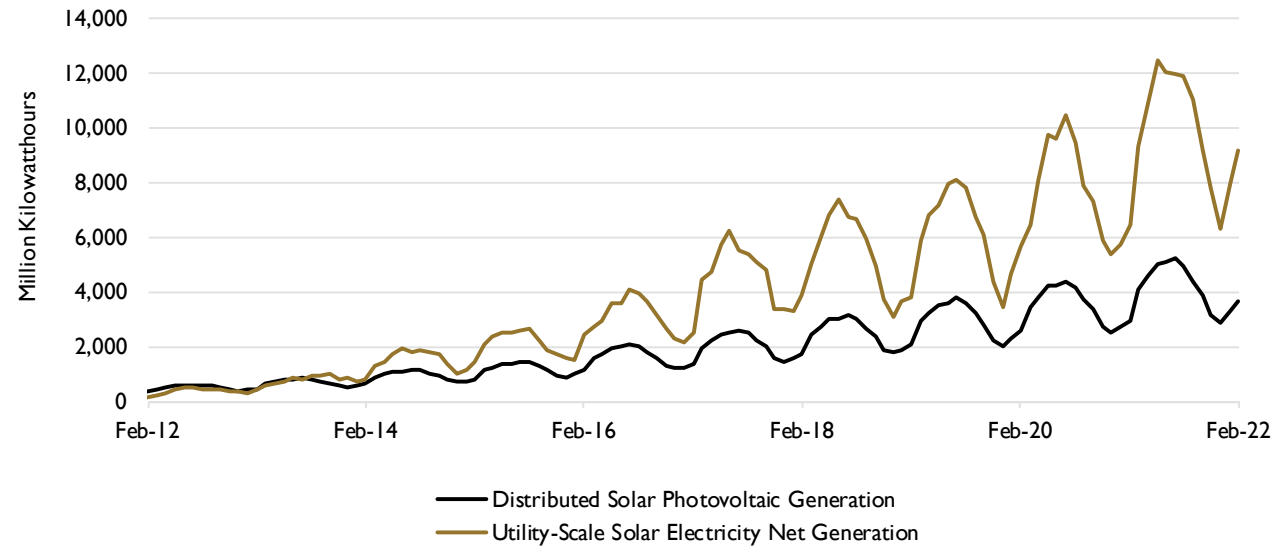
DATA CENTER

RENEWABLES

U.S. Solar Energy Consumption (Monthly) (44)



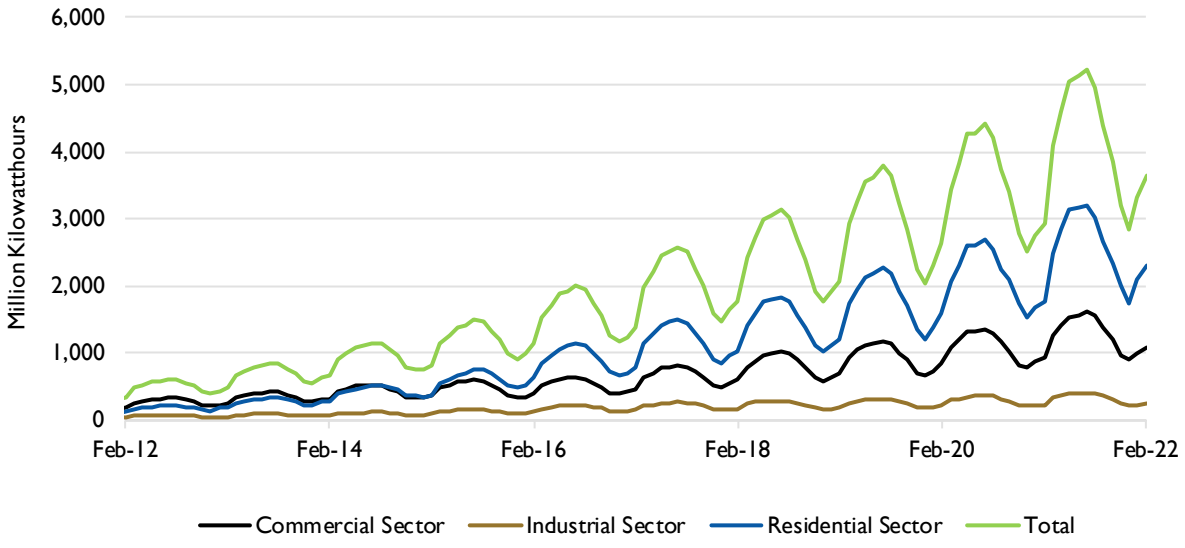
U.S. Solar Energy Net Generation (Monthly) (45)



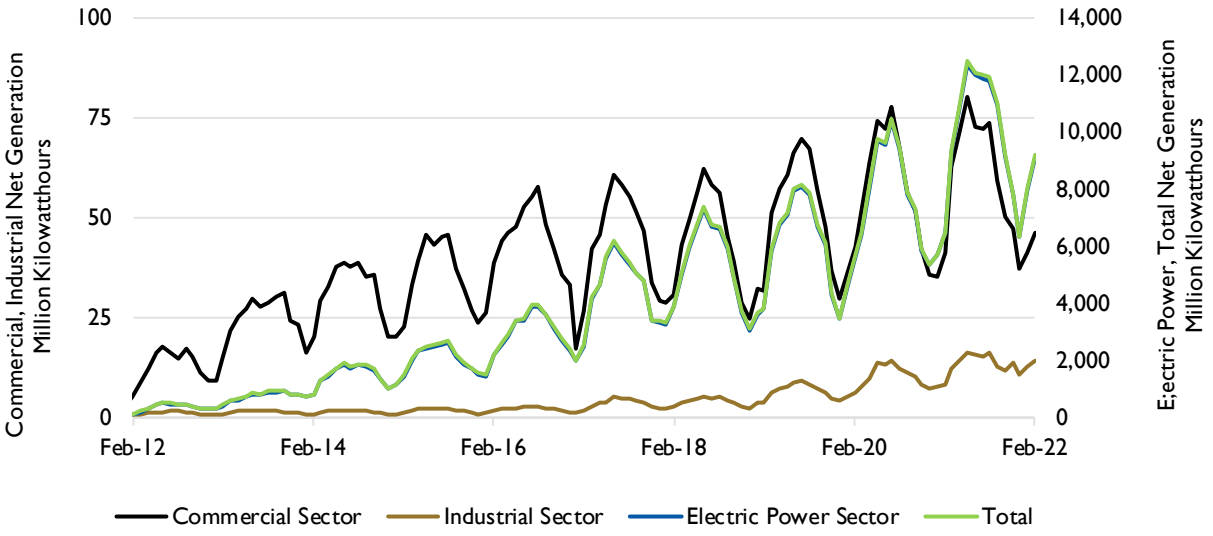
DATA CENTER

RENEWABLES

DISTRIBUTED SOLAR PHOTOVOLTAIC GENERATION BY SECTOR (MONTHLY) (46)



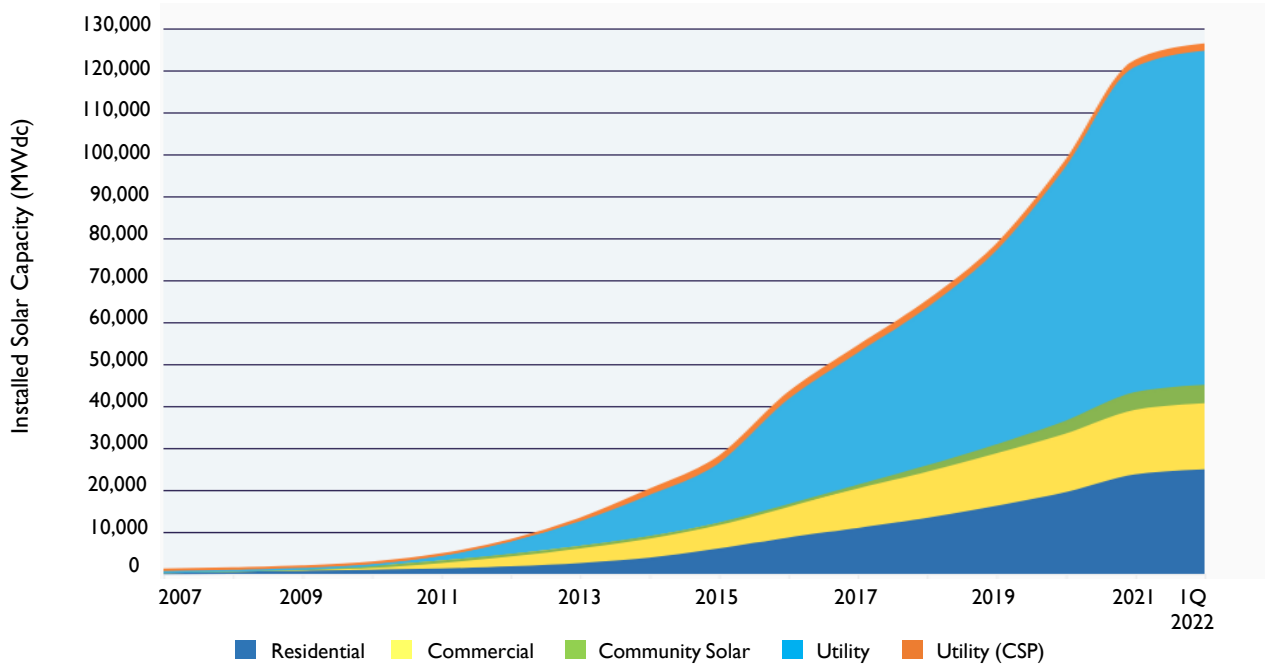
UTILITY-SCALE SOLAR ELECTRICITY NET GENERATION BY SECTOR (MONTHLY) (47)



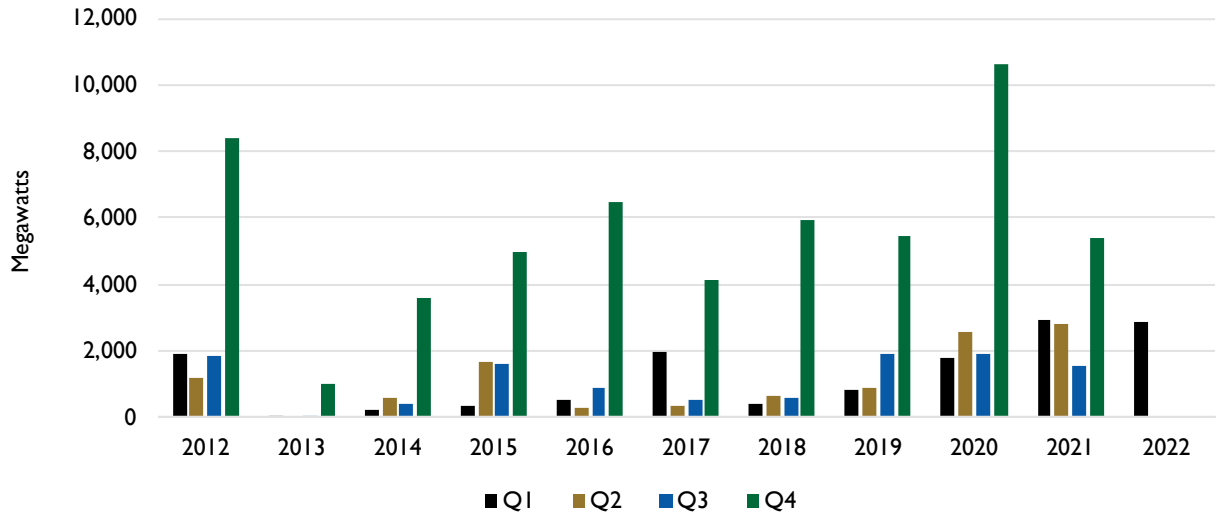
DATA CENTER

RENEWABLES

U.S. Cumulative Solar Installations (Quarterly) (48)



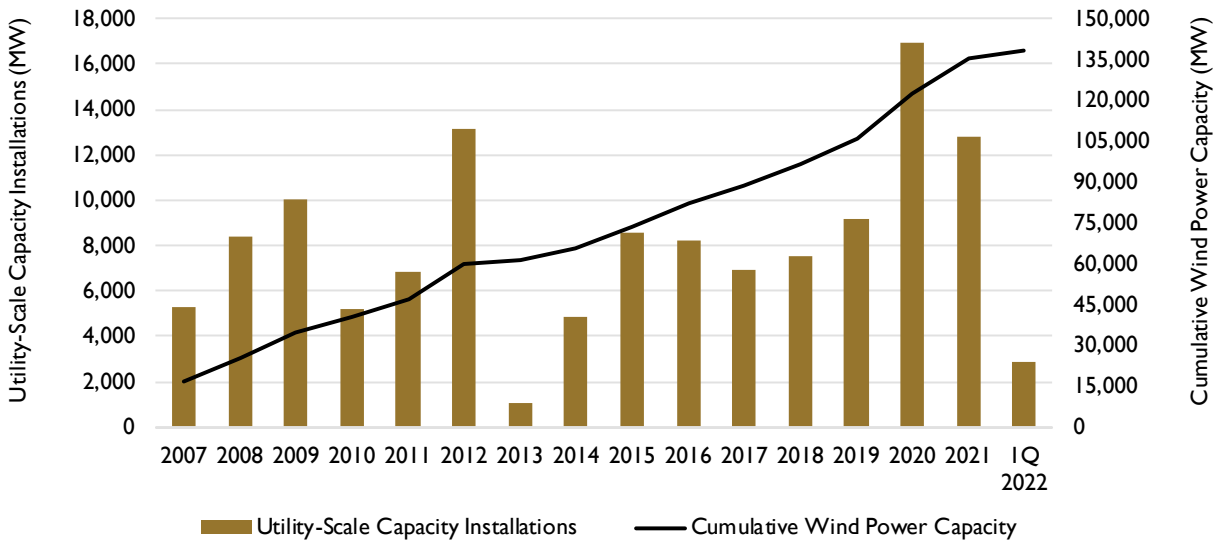
U.S. Wind Power Capacity Installations (Quarterly) (49)



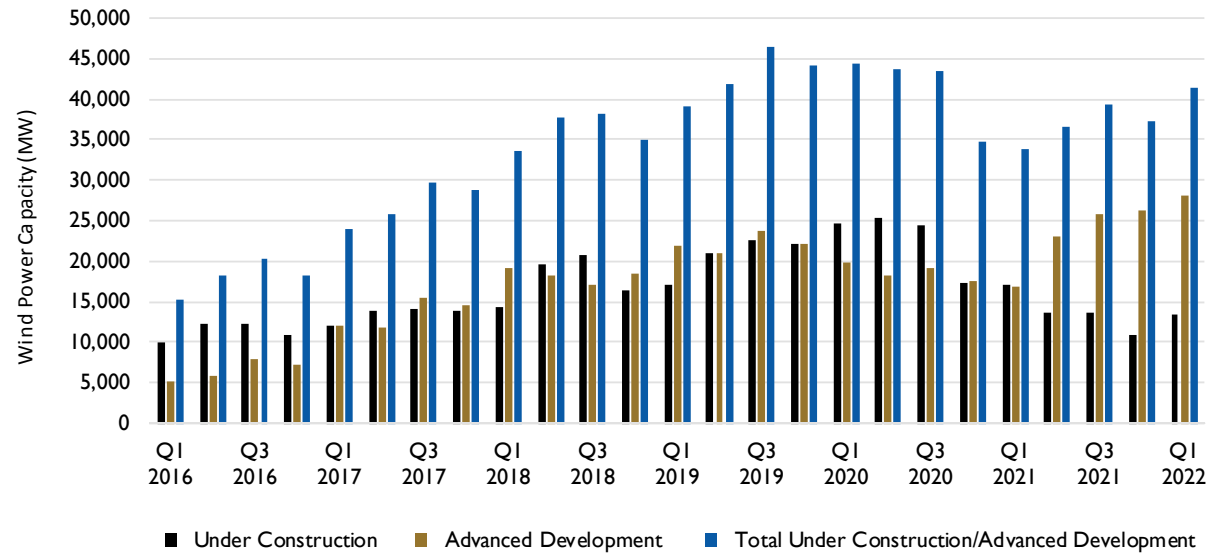
DATA CENTER

RENEWABLES

UTILITY-SCALE WIND POWER CAPACITY INSTALLATIONS (QUARTERLY) (50)



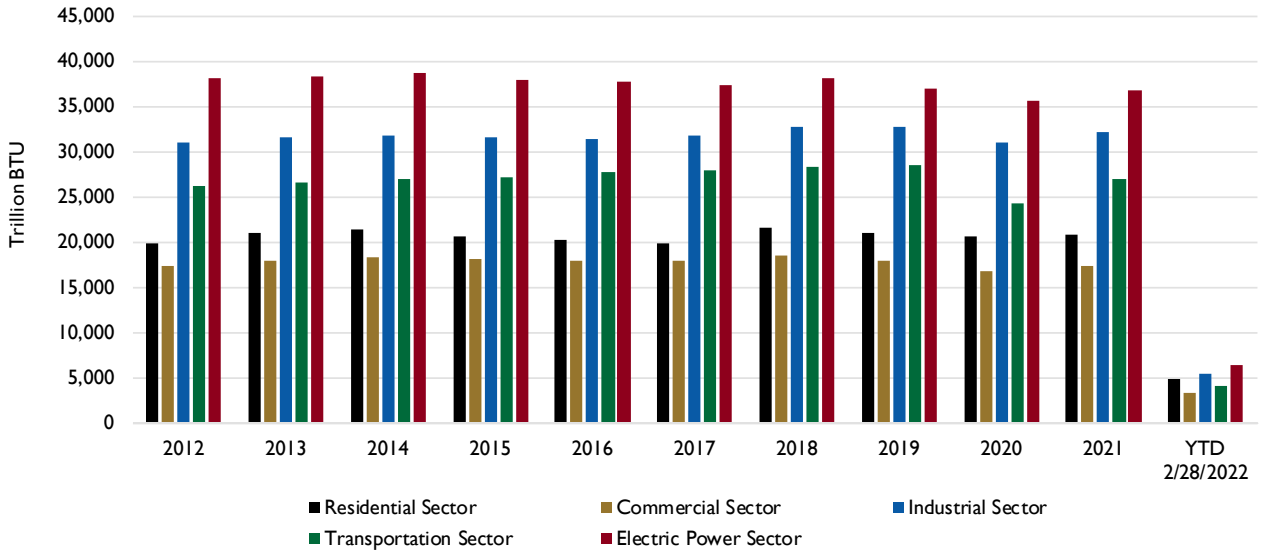
WIND POWER UNDER CONSTRUCTION OR IN ADVANCED DEVELOPMENT (QUARTERLY) (51)



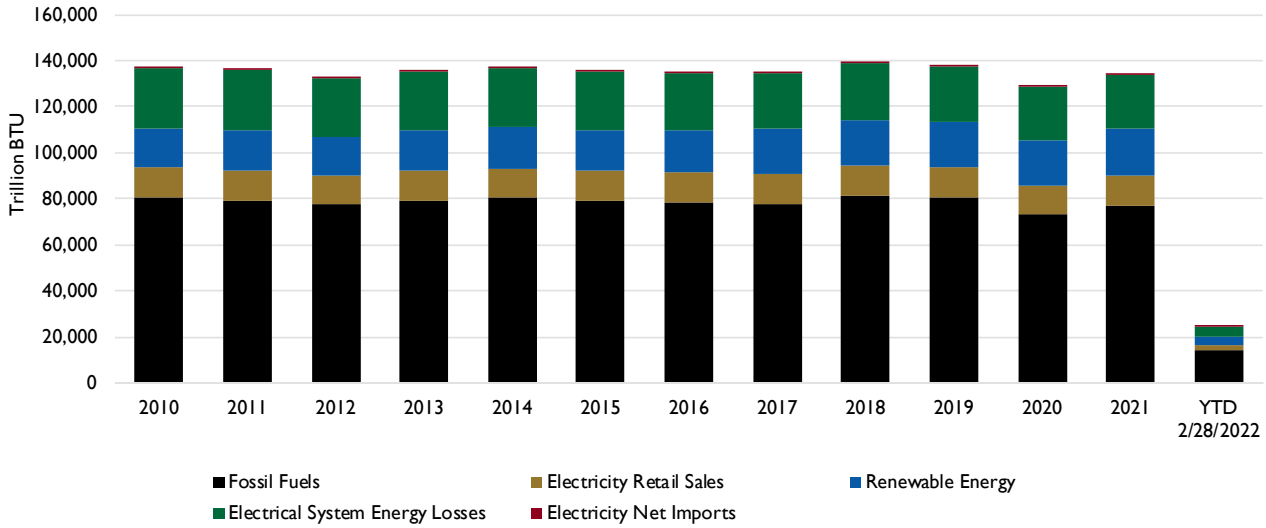
DATA CENTER

U.S. AGGREGATED ENERGY CONSUMPTION

ENERGY CONSUMPTION BY SECTOR (ANNUAL) (52)



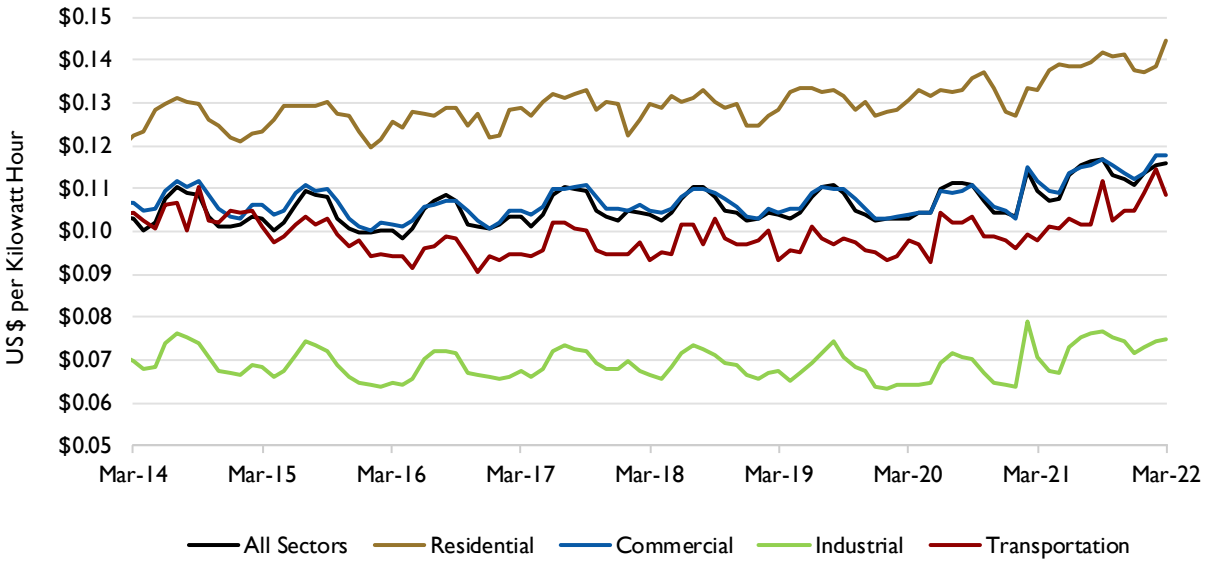
ENERGY CONSUMPTION BY SOURCE (ANNUAL) (53)



DATA CENTER

U.S. AGGREGATED ENERGY CONSUMPTION

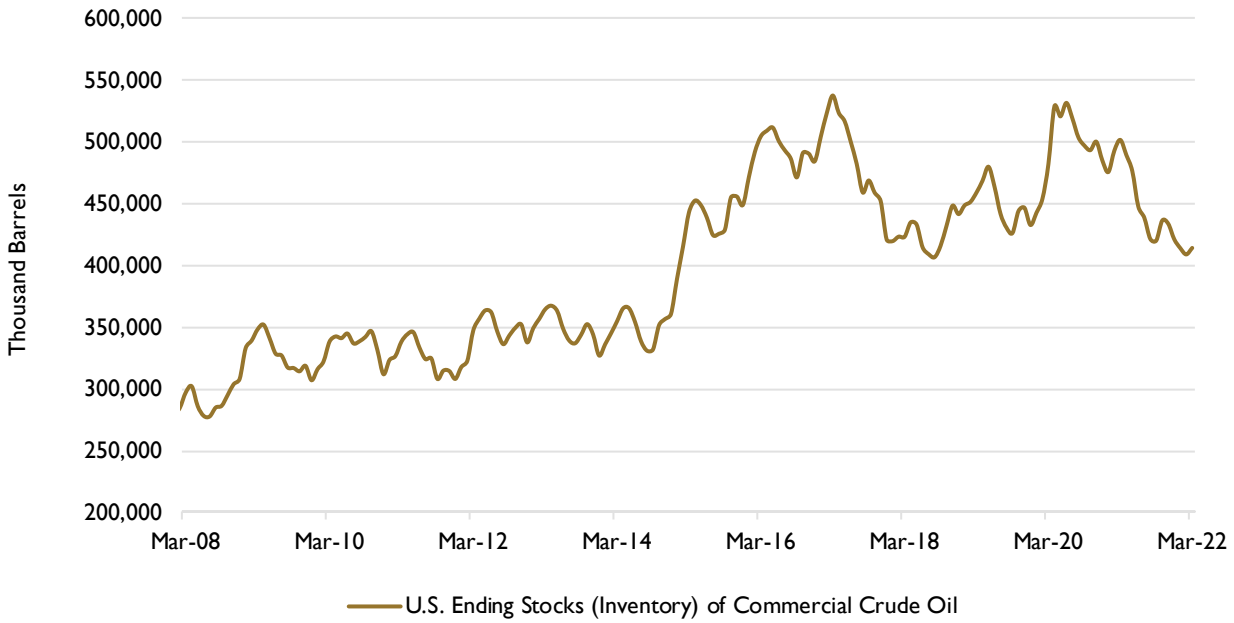
ELECTRICITY PRICES BY SECTOR (MONTHLY AVERAGE) (54)



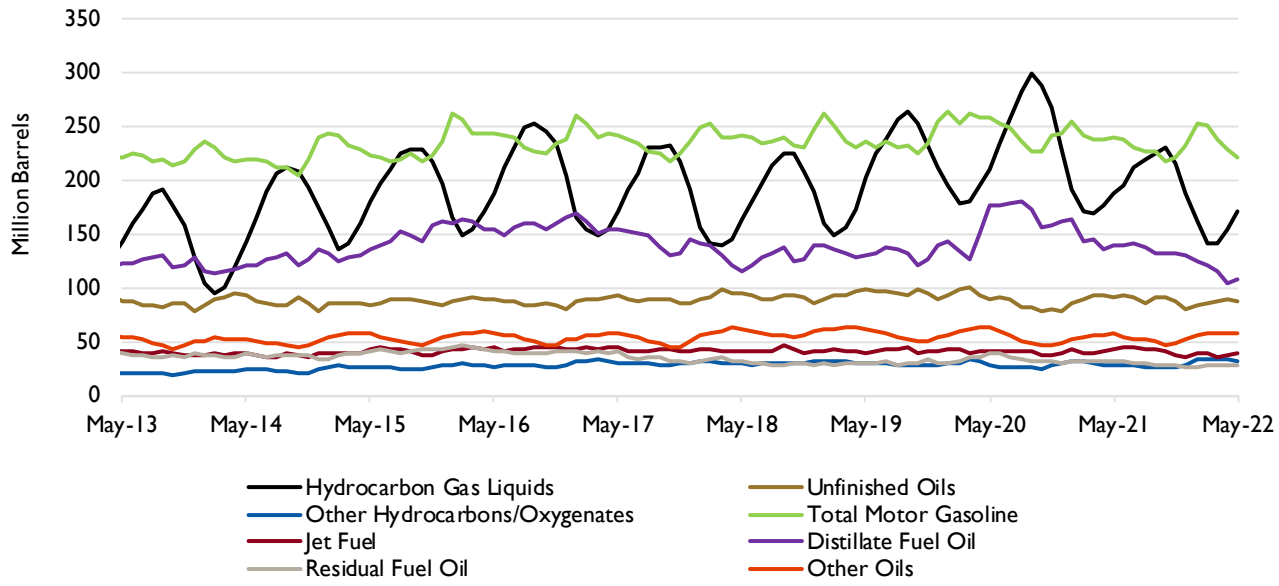
DATA CENTER

LOGISTICS - STORAGE AND TERMINALS

COMMERCIAL CRUDE OIL INVENTORY (MONTHLY) (55)



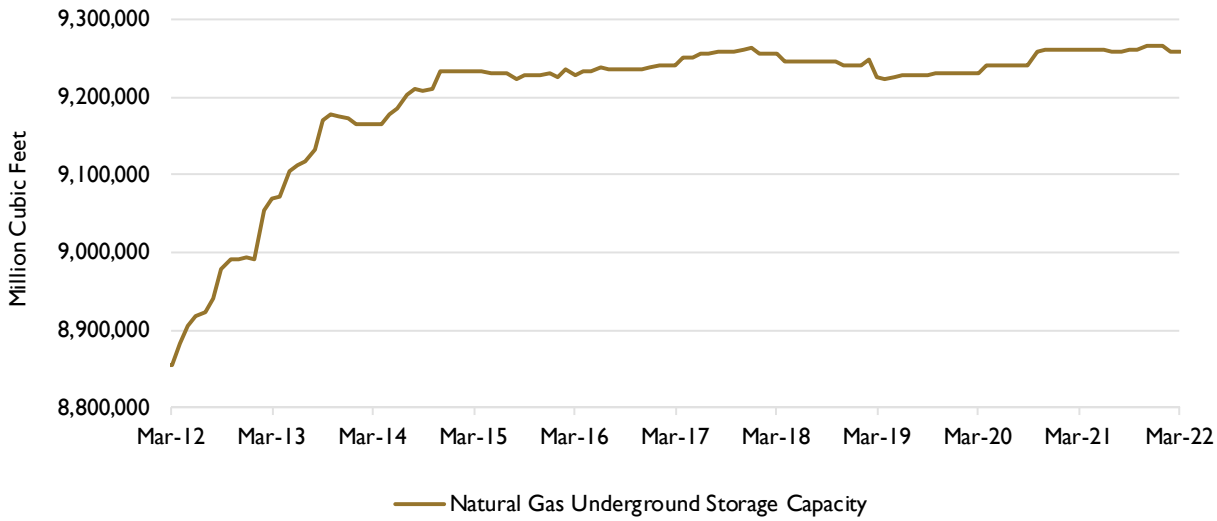
PETROLEUM AND OTHER LIQUIDS COMMERCIAL INVENTORY (MONTHLY) (56)



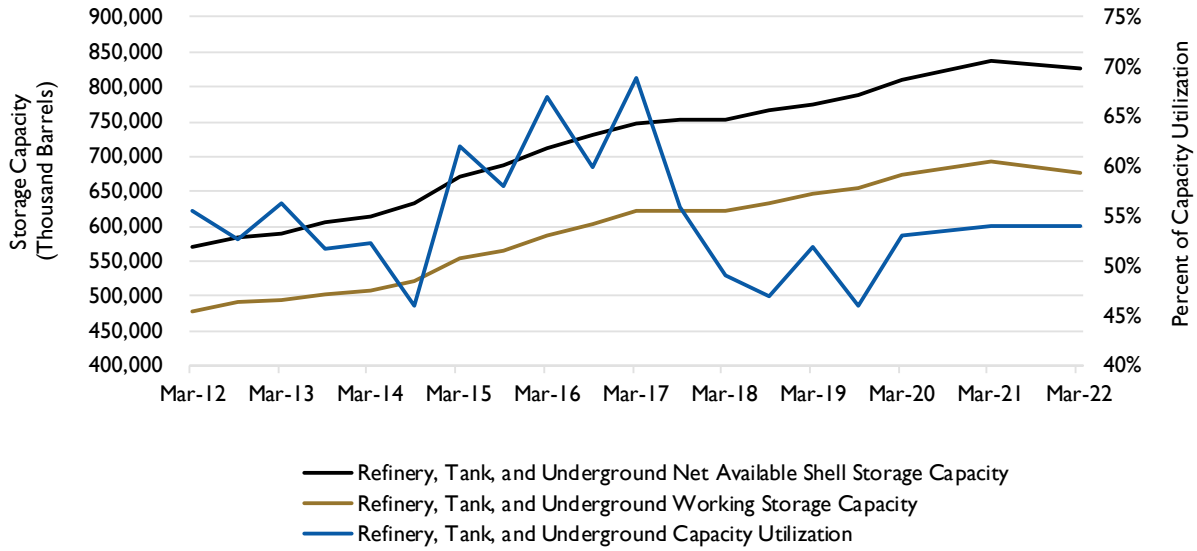
DATA CENTER

LOGISTICS - STORAGE AND TERMINALS

NATURAL GAS UNDERGROUND STORAGE CAPACITY (MONTHLY) (57)



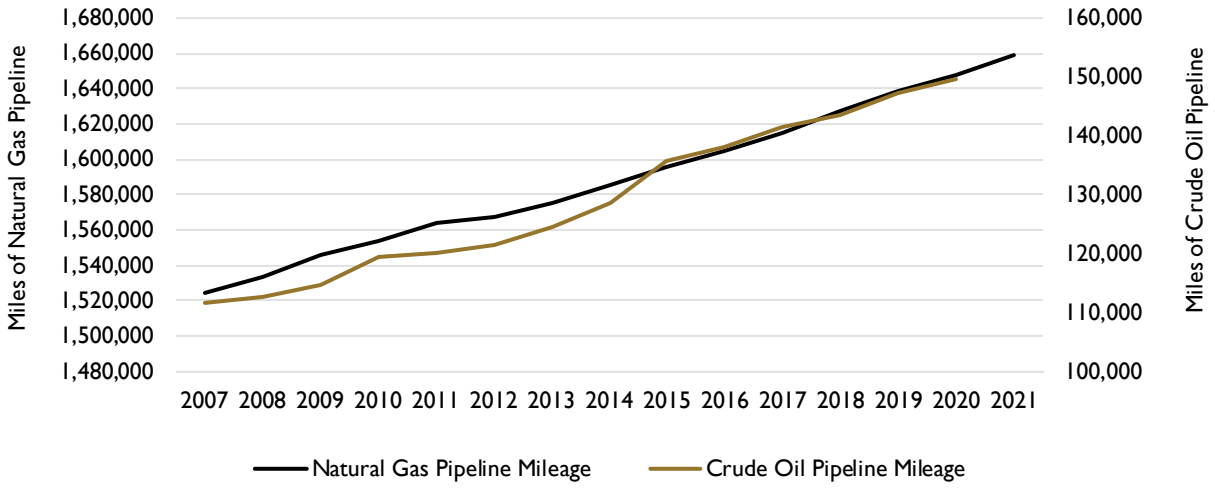
COMMERCIAL CRUDE OIL REFINERY, TANK AND UNDERGROUND STORAGE CAPACITY AND UTILIZATION (ANNUAL) (58)



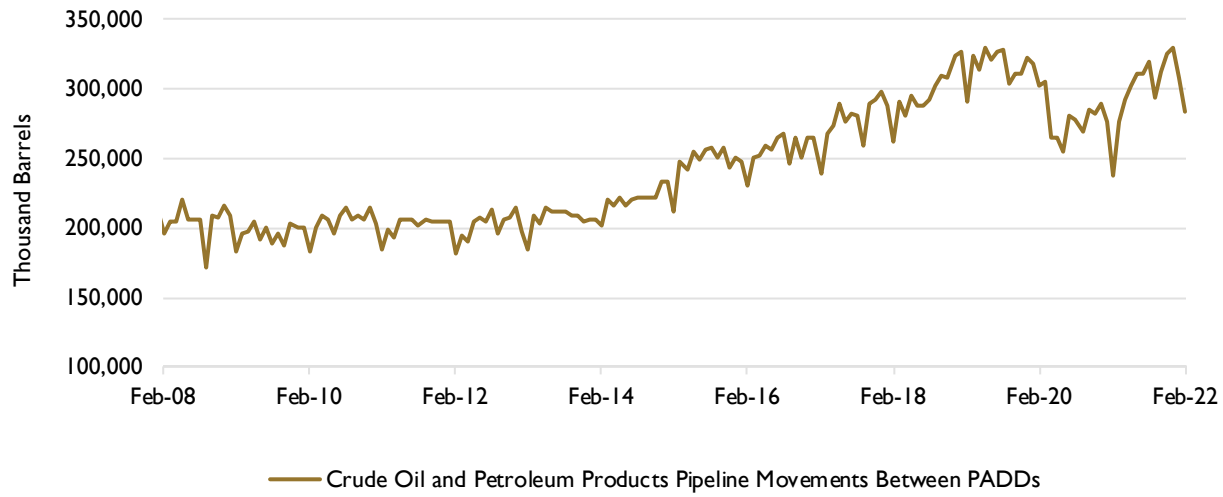
DATA CENTER

LOGISTICS - PIPELINES

CRUDE OIL AND NATURAL GAS PIPELINE MILEAGE (ANNUAL) (59)



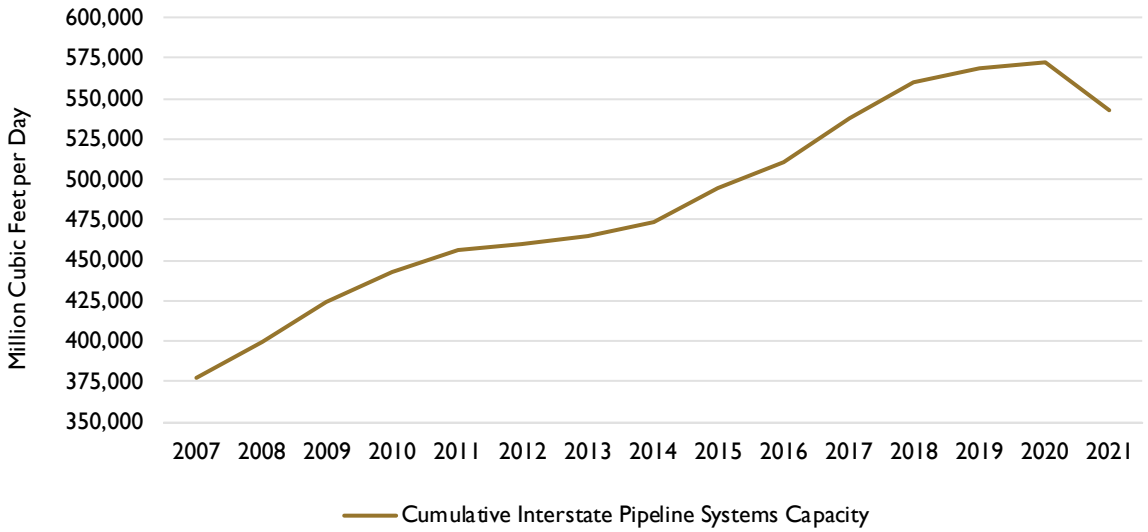
CRUDE OIL AND PETROLEUM PRODUCTS PIPELINE MOVEMENTS BETWEEN PETROLEUM ADMINISTRATION FOR DEFENSE DISTRICTS (PADDS) (MONTHLY) (60)



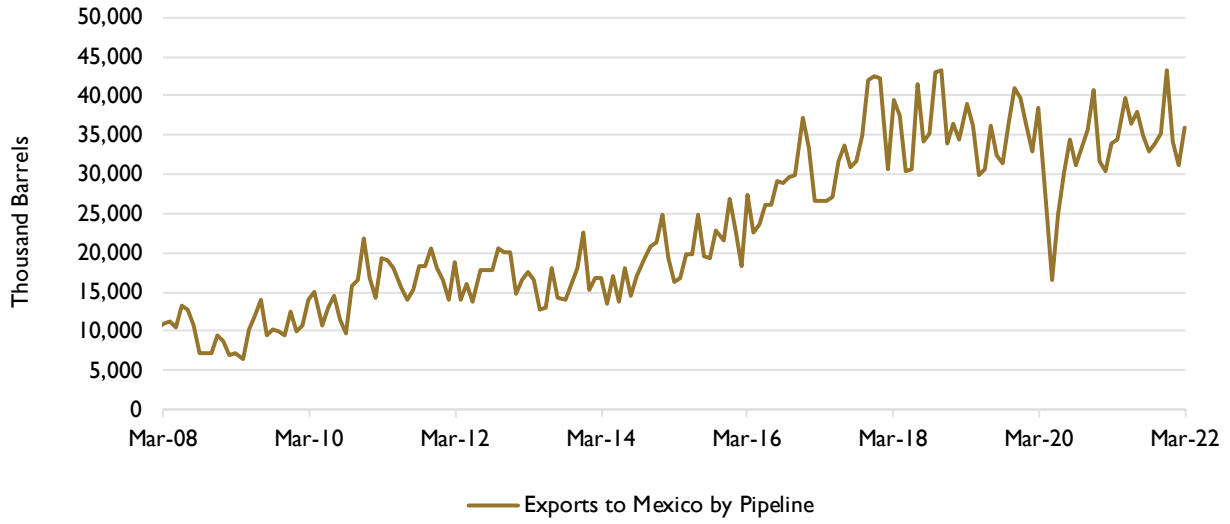
DATA CENTER

LOGISTICS - PIPELINES

NATURAL GAS CUMULATIVE INTERSTATE PIPELINE SYSTEMS CAPACITY (ANNUAL) (61)



CRUDE OIL AND PETROLEUM PRODUCTS EXPORTS TO MEXICO (MONTHLY) (62)

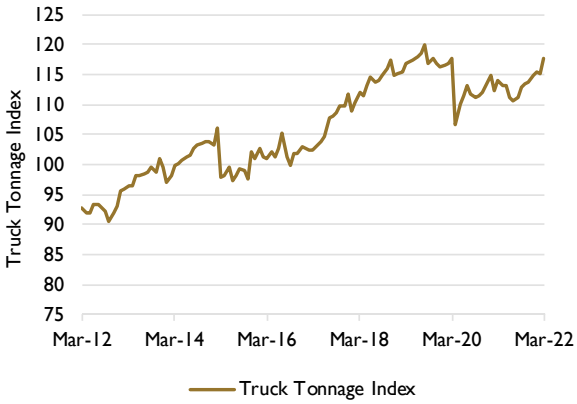


DATA CENTER

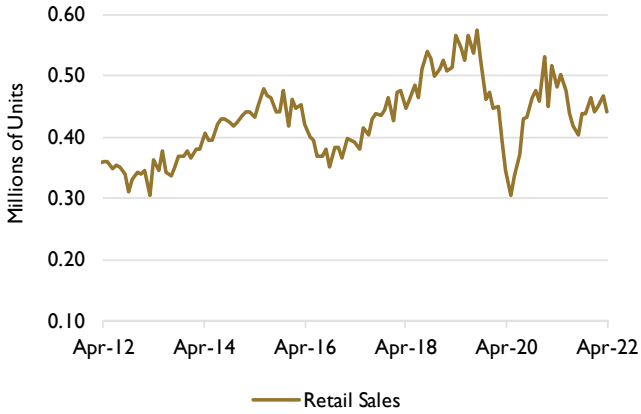
LOGISTICS - TRUCKERS

TRUCK TONNAGE INDEX (MONTHLY) (63)

MEASURES GROSS TONNAGE OF FREIGHT

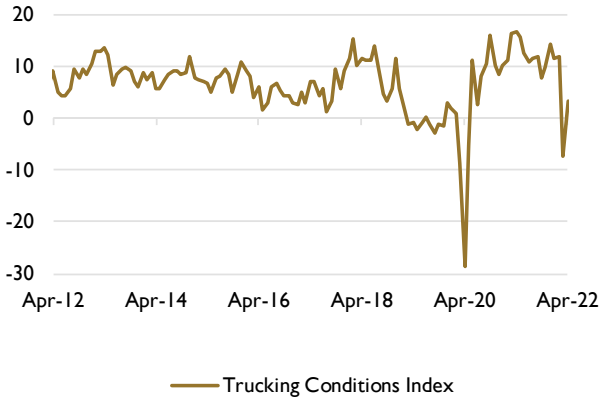


HEAVY TRUCK SALES (MONTHLY) (64)



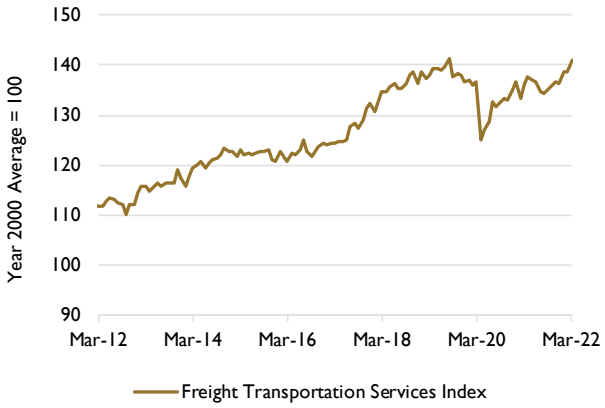
TRUCKING CONDITIONS INDEX (MONTHLY) (65)

INCLUDES FRIGHT VOLUMES, RATES, FLEET CAPACITY, BANKRUPTCIES, FUEL PRICE AND FINANCING



FREIGHT TRANSPORTATION SERVICES INDEX (MONTHLY) (66)

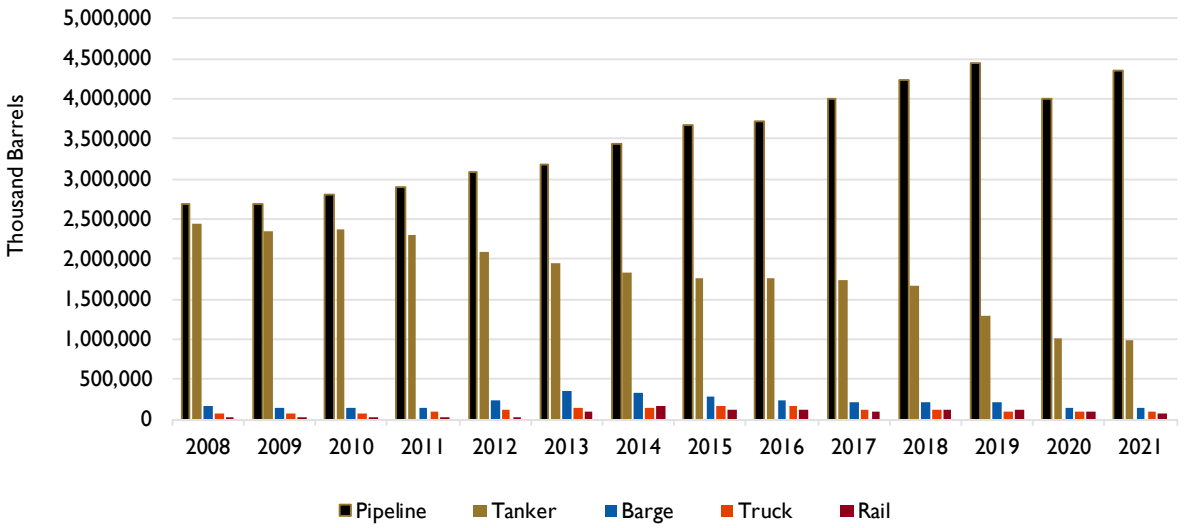
INCLUDES TRUCKING, RAIL, WATERWAYS, PIPELINES AND AIR FRIGHT



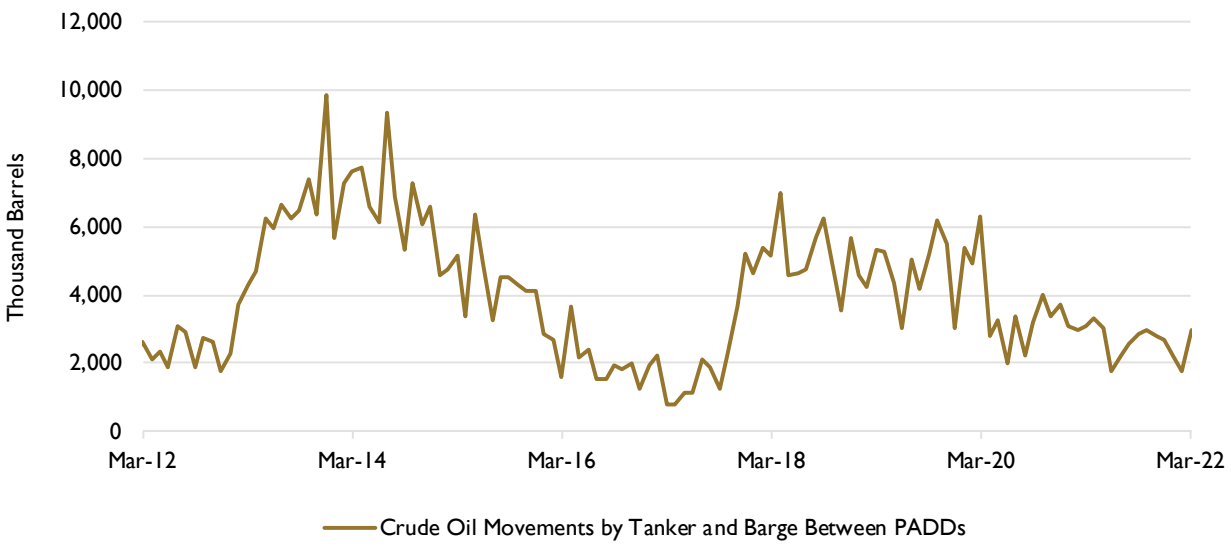
DATA CENTER

LOGISTICS - SHIPPING

CRUDE OIL REFINERY RECEIPTS BY TRANSPORTATION METHOD (ANNUAL) (67)



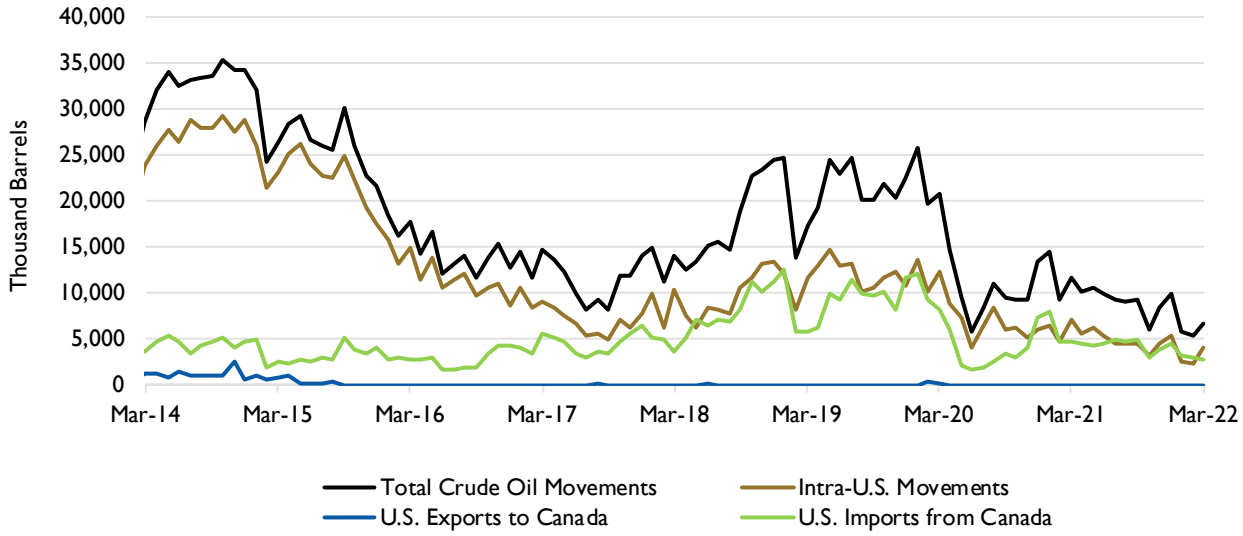
CRUDE OIL MOVEMENTS BY TANKER AND BARGE BETWEEN PETROLEUM ADMINISTRATION FOR DEFENSE DISTRICTS (PADDS) (MONTHLY) (68)



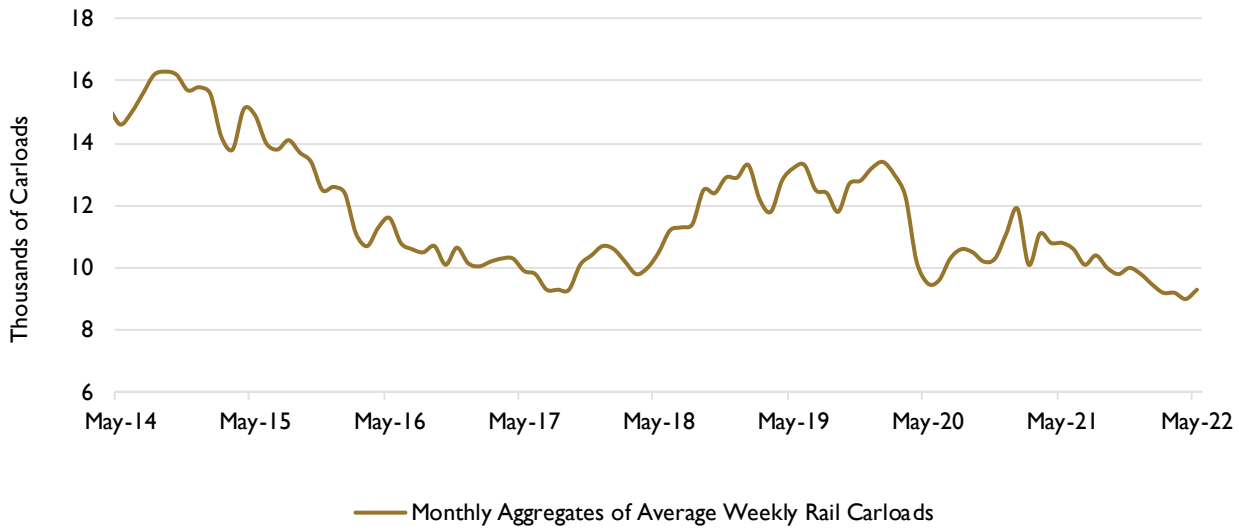
DATA CENTER

LOGISTICS - RAIL

MOVEMENTS OF CRUDE OIL BY RAIL (MONTHLY) (69)



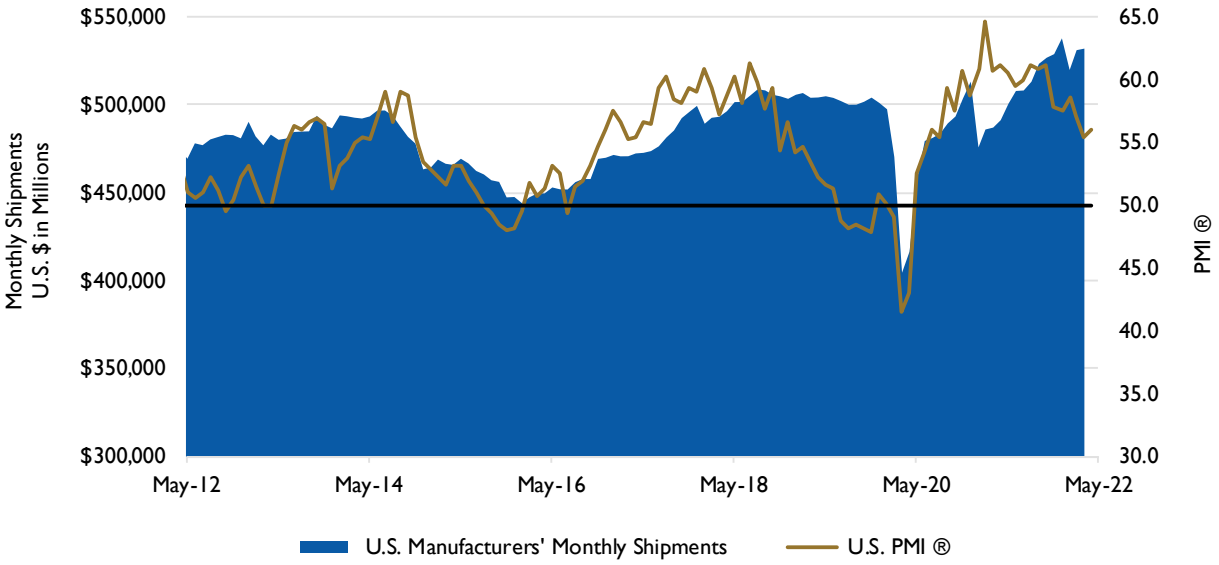
AVERAGE WEEKLY RAIL CARLOADS OF PETROLEUM AND PETROLEUM PRODUCTS (MONTHLY AGGREGATE) (70)



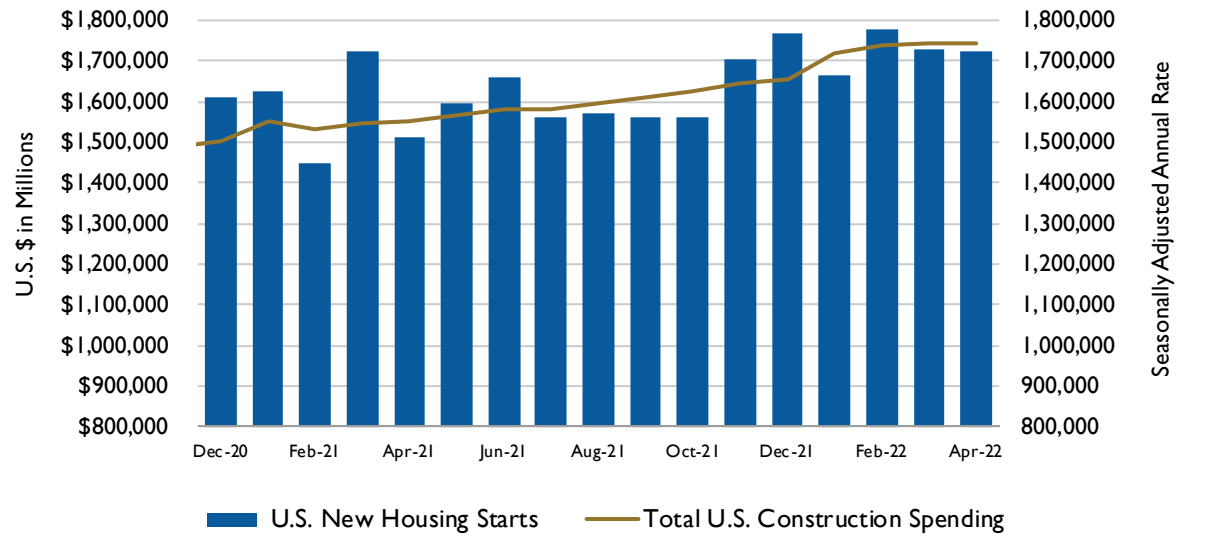
DATA CENTER

ECONOMIC / FINANCIAL

U.S. MANUFACTURERS' MONTHLY SHIPMENTS AND U.S. PURCHASING MANAGERS' INDEX (PMI®) (MONTHLY) (71)



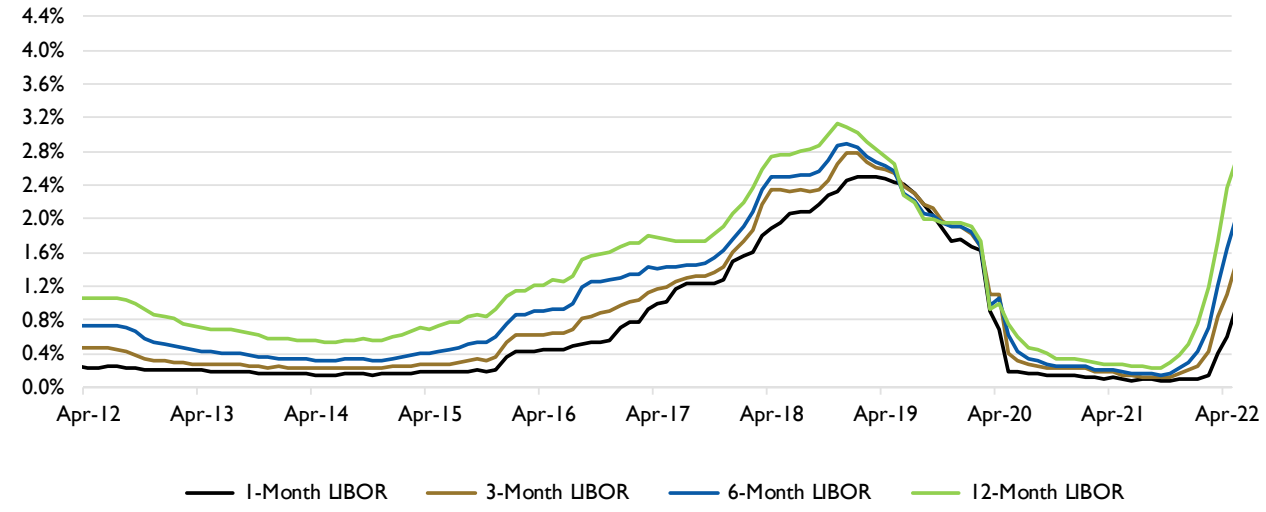
U.S. NEW HOUSING STARTS AND TOTAL U.S. CONSTRUCTION SPENDING (MONTHLY) (72)



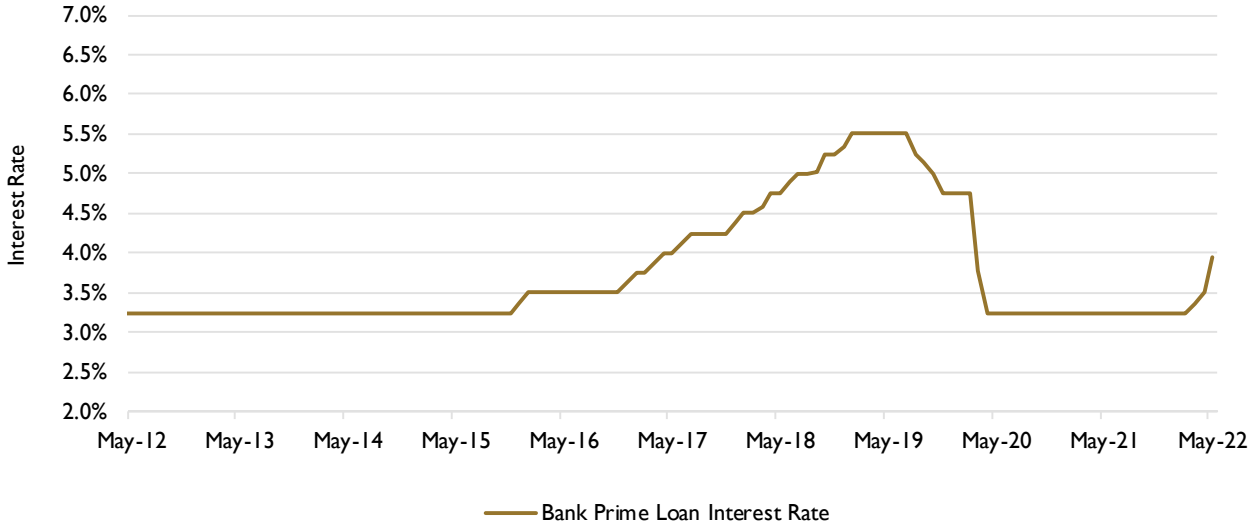
DATA CENTER

ECONOMIC / FINANCIAL

London Interbank Offered Rate (LIBOR) (Monthly Average) Based on U.S. Dollar (73)



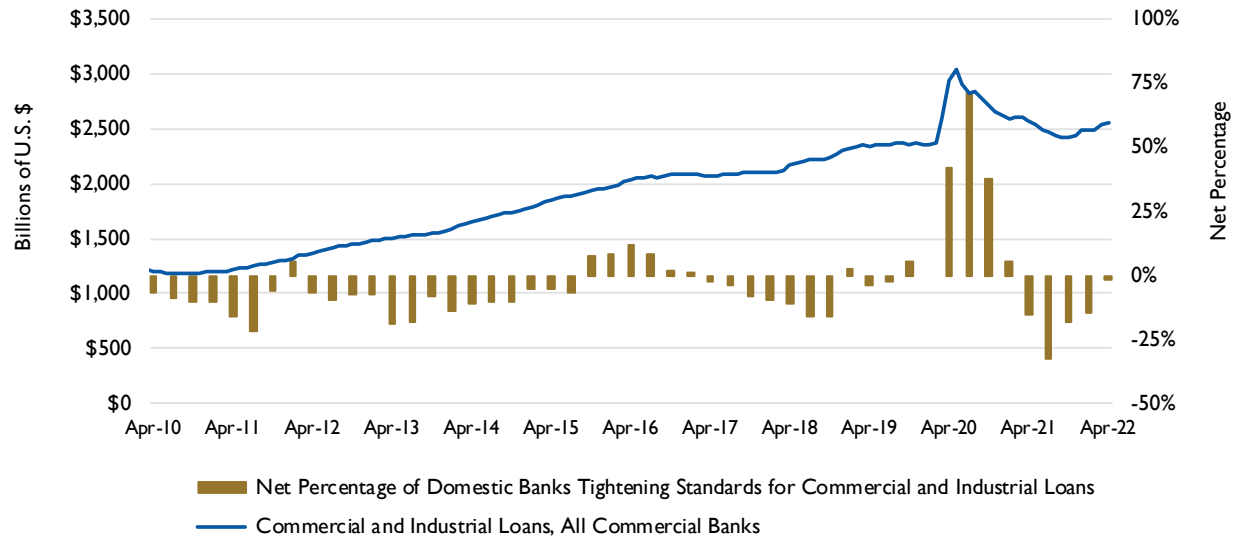
Bank Prime Loan Interest Rates (Monthly Average) (74)



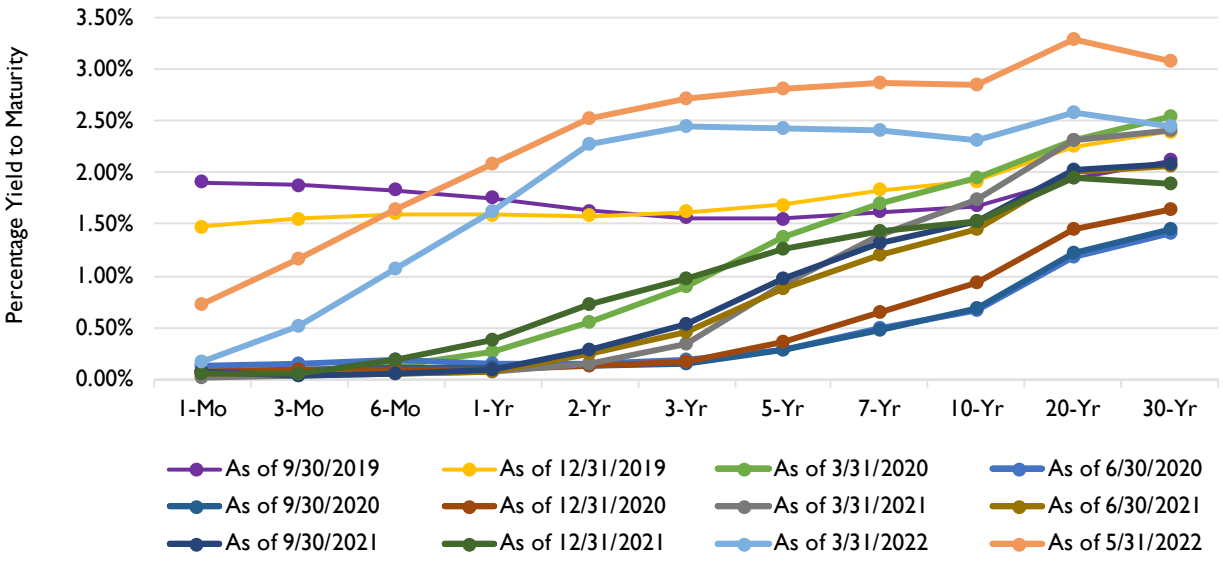
DATA CENTER

ECONOMIC / FINANCIAL

COMMERCIAL AND INDUSTRIAL LOANS VS. BANKING STANDARDS (QUARTERLY, MONTHLY) (75)



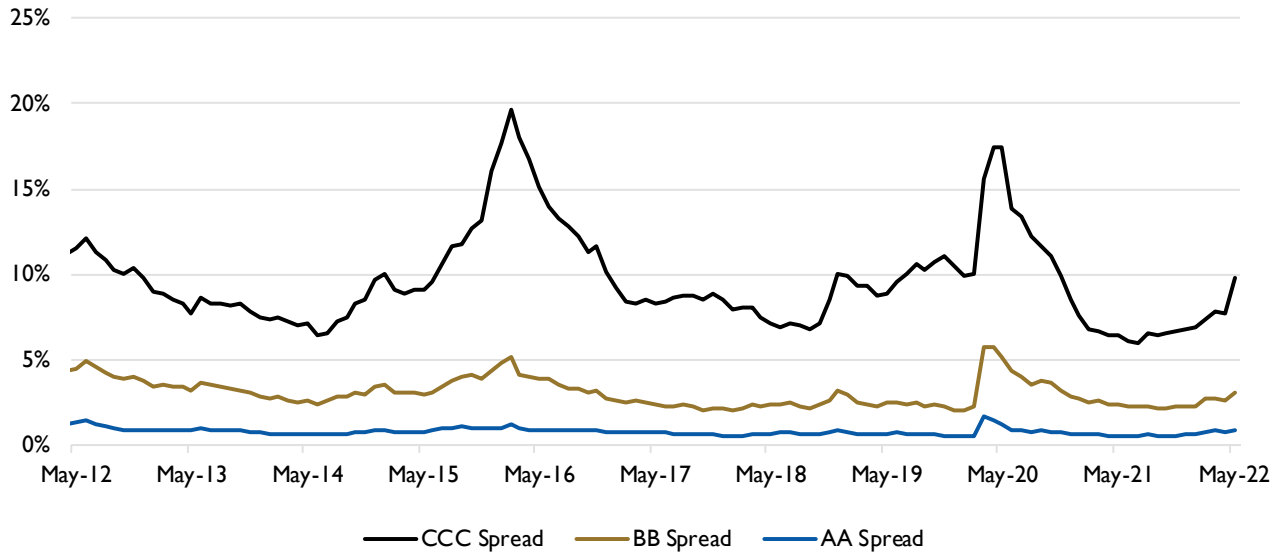
U.S. TREASURY YIELD CURVE (MONTHLY, ANNUAL) (76)



DATA CENTER

ECONOMIC / FINANCIAL

CORPORATE SPREADS TO TREASURIES BY QUALITY
(MONTHLY AVERAGE) (77)



DATA CENTER: ABBREVIATIONS & ACRONYMS, DEFINITIONS, DESCRIPTIONS AND CHART NOTES

ABBREVIATIONS & ACRONYMS

AECO – Alberta Energy Company
ARAMCO – Saudi Arabian Oil Company, formerly the Arabian-American Oil Company
BCF – Billion cubic feet
BTU – British thermal unit
CIF – Costs, insurance and freight
CMT – Constant maturity treasury
DUC – Drilled but uncompleted wells
EBITDA – Earnings before interest, taxes, depreciation and amortization
IFO – Intermediate fuel oil
ITC – Investment Tax Credit
LCOE – Levelized cost of energy
LIBOR – London Interbank Offered Rate
LNG – Liquefied natural gas
LPG – Liquefied petroleum gas
mmBTU – Millions of British Thermal Units
MTBE – Methyl tertiary butyl ether
MW – Megawatt
NBP – National Balancing Point
NGPL – Natural gas plant liquids
NYMEX – New York Mercantile Exchange
OAS – Option-adjusted spread
OPEC – The Organization of Petroleum Exporting Countries
PADD – Petroleum Administration for Defense District
PG&E – Pacific Gas & Electric
PMI ® – U.S. Purchasing Managers Index ®
PV – Photovoltaic
SoCal – Southern California
SPR – Strategic Petroleum Reserve
TETCO-M3 – Texas Eastern Transmission Corporation Pipeline Zone M3
TTF – Title Transfer Facility
UAE – United Arab Emirates
WTI – West Texas Intermediate crude oil

DATA CENTER: ABBREVIATIONS & ACRONYMS, DEFINITIONS, DESCRIPTIONS AND CHART NOTES

DEFINITIONS

Biofuels – liquid fuels and blending components produced from biomass feedstocks, used primarily for transportation.

British Thermal Unit (BTU) – A traditional unit of heat; it is defined as the amount of heat required to raise the temperature of one pound of water by one degree Fahrenheit.

Ending Stocks – A proxy for inventory, defined as the total volume of a given commodity held in storage (leases, refineries, processing plants, pipelines, terminals, tank farms) at the end of the last day of a given month.

Distillate Fuel Oil – A general classification for a variety of petroleum fractions produced in petroleum distillation operations. Included within this classification are No. 1, No. 2 and No. 4 diesel fuels (used in on-highway and off-highway diesel engines), as well as No. 1, No. 2 and No. 4 fuel oils (used primarily for space heating and electric power generation).

Distributed Solar Energy – Refers to solar energy generated by small-scale photovoltaic generation plants. Small-scale is defined as a plant with capacity below one megawatt.

Index – A figure in a system or scale representing the average value of specified prices, shares, or other items as compared with some reference figure.

Intermediate Fuel Oil – Also known as IFO and Bunker Fuel, fuel utilized by ships and barges to facilitate international exchange of various commodities across an array of industries.

Investment Tax Credit – A federal policy tax incentive that supports the deployment of solar energy in the United States.

LIBOR – The London Interbank Offered Rate is the average interest rate at which leading banks borrow funds of a sizeable amount from other banks in the London market.

Liquefied Natural Gas – Natural gas that has been cooled to a liquid state, at about -260°Fahrenheit, for shipping and storage.

Liquefied Petroleum Gas – A group of hydrocarbon gases, primarily propane, normal butane and isobutene, derived from crude oil refining or natural gas processing.

Natural Gas Liquids – A group of hydrocarbons including ethane, propane, normal butane, isobutene and natural gasoline. Generally include natural gas plant liquids and all liquefied refinery gases except olefins.

Natural Gas Plant Liquids – Ethane, propane, butane, isobutane, pentane and pentane plus.

Petroleum Administration for Defense District (PADD) – A geographic aggregation of the 50 States and the District of Columbia into five Districts. PADD 1 is the East Coast region, PADD 2 is the Midwest region, PADD 3 is the Gulf Coast region and PADD 5 is the West Coast region.

Petroleum Products – Obtained from the processing of crude oil (including lease condensate), natural gas and other hydrocarbon compounds. Petroleum products include unfinished oils, liquefied petroleum gases, pentanes plus, aviation gasoline, motor gasoline, naphtha-type jet fuel, kerosene-type jet fuel, kerosene, distillate fuel oil, residual fuel oil, petrochemical feedstocks, special naphthas, lubricants, waxes, petroleum coke, asphalt, road oil, still gas and miscellaneous products.

DATA CENTER: ABBREVIATIONS & ACRONYMS, DEFINITIONS, DESCRIPTIONS AND CHART NOTES

DEFINITIONS

Product Supplied – A widely utilized proxy for consumption of petroleum products, measuring the disappearance of said products from primary sources. Primary sources include, among others, refineries, processing plants, blending plants, pipelines and bulk terminals.

Propylene – Petrochemical feedstock that is recovered from refinery or petrochemical processes. It is an olefinic hydrocarbon that is gaseous at standard temperature and pressure.

Residual Fuel Oil – The general classification for heavy oils that remain after lighter oils are distilled away in the process of petroleum refining.

Spot vs. Wholesale Price – "Spot" prices are defined by the U.S. Energy Information Administration as, "the price for a one-time open market transaction for immediate delivery of a specific quantity of a product at a specific location where the commodity is purchased 'on the spot' at current market rates."

In this report, certain charts contain both "spot" and "wholesale" prices for given commodities alongside each other within the same chart. In these instances, the wholesale prices shown are, in fact, wholesale market "spot" prices. Thus, the terms are interchangeable in charts where both terms are present in describing respective price series.

Strategic Petroleum Reserve (SPR) – An emergency fuel storage of crude oil maintained by the United States Department of Energy for use during periods of major supply interruption.

Virtual Trading Point – Commodity trading center created to service a specific geographic region but does not have a physical location.

DATA CENTER: ABBREVIATIONS & ACRONYMS, DEFINITIONS, DESCRIPTIONS AND CHART NOTES

DESCRIPTIONS

General Conversion Information

- International pricing data for various commodities were converted by JKC from the units utilized by the original data source (in the form of currency value per unit of energy content or volume) to appropriate domestic units (in the form of U.S. dollars per common domestic unit of energy content or volume) in order to allow for convenient, informative comparison of international and domestic commodity price series through displaying them on a singular chart in consistent units. Appropriate domestic units for a given commodity are determined by whatever units are most commonly utilized in the United States to denote prices of that commodity, per the U.S. Energy Information Administration.
- International currency units were converted to U.S. dollars using historical exchange rates published by x-rates.com.
- Energy content and volume conversion factors differ by commodity. International energy content or volume units were converted using the various sources listed below:
  - Google.com In-Browser Unit Converter
    - Alberta Energy Co. Hub Natural Gas – gigajoules to mmBTU
    - Dutch TTF Hub Natural Gas – megawatt hours to mmBTU
    - Houston; Los Angeles; Rotterdam; Singapore; Port of Fujairah, UAE IFO 380, IFO 180 Bunker Fuel – liters/kilogram to gallons per metric ton
  - Iowa State University Liquid Fuel Measurements and Conversions
    - Netherlands Retail LPG – liters to metric tons, metric tons to barrels
    - Saudi ARAMCO Propane – metric tons to barrels
    - Japan Propane Imports – metric tons to barrels
    - Holland Retail Gasoline – liters to gallons
    - Singapore Retail Gasoline – liters to gallons
    - UAE Gasoline – liters to gallons
    - Edmonton Diesel Fuel – liters to gallons
    - Singapore Retail Diesel – liters to gallons
    - Holland Retail Diesel – liters to gallons
    - UAE Diesel – liters to gallons
  - Official Nebraska Government Website
    - Netherlands Retail LPG – barrels to gallons
    - Saudi ARAMCO Propane – barrels to gallons
    - Japan Propane Imports – barrels to gallons
  - Lanka IOC Oil Company
    - Houston; Los Angeles; Rotterdam; Singapore; Port of Fujairah, UAE IFO 380, IFO 180 Bunker Fuel – density, in liters per kilogram

DATA CENTER: ABBREVIATIONS & ACRONYMS, DEFINITIONS, DESCRIPTIONS AND CHART NOTES

CHART NOTES

All charts in this report are updated to the latest information available at the time of publication. Due to differing reporting dates for various data used throughout the report, all charts are not updated to the same ending period.

(1) Crude Oil Prices

- Sources: U.S. Energy Information Administration (Brent, West Texas Intermediate), IndexMundi via WorldBank (Dubai Fateh), Alberta.ca Economic Dashboard (Western Canadian Select), OPEC.org and Quandl.com (OPEC Reference Basket).
- The Organization of Petroleum Exporting Countries (OPEC) reference basket is a composite of the following blends of crude oil: Saharan Blend (Algeria), Girassol (Angola), Oriente (Ecuador), Zafiro (Equatorial Guinea), Rabi Light (Gabon), Iran Heavy (Islamic Republic of Iran), Basra Light (Iraq), Kuwait Export (Kuwait), Es Sider (Libya), Bonny Light (Nigeria), Qatar Marine (Qatar), Arab Light (Saudi Arabia), Murban (United Arab Emirates), Merey (Venezuela).
- All prices are spot or wholesale.

(2) Gasoline Prices

- Sources: U.S. Energy Information Administration (New York Harbor, U.S. Gulf Coast), Trading Economics (Singapore, Netherlands Retail), United Arab Emirates Ministry of Energy (UAE Retail).
- New York Harbor Spot, U.S. Gulf Coast Spot, Netherlands Retail and Singapore Retail all represent the price history of conventional gasoline in their respective locations. United Arab Emirates Retail represents an aggregate of unleaded 95, unleaded 98 and unleaded 91 prices in the United Arab Emirates.

(3) Diesel Prices

- Sources: U.S. Energy Information Administration (U.S. Gulf Coast, New York Harbor, Los Angeles, CA), Ec.euopa.eu European Commission (Netherlands Retail), Knoema.com (Singapore Retail), United Arab Emirates (UAE Retail).
- New York Harbor, U.S. Gulf Coast and Los Angeles, CA prices represent ultra-low sulfur No. 2 diesel.
- Edmonton, Canada price represents low-sulfur diesel.
- Singapore Retail, United Arab Emirates Retail and Netherlands Retail prices represent conventional gasoil found at the pump. Gasoil is an alternative term for diesel commonly used throughout Europe.
- Netherlands Retail prices exclude taxes, Singapore Retail prices include taxes.

(4) Jet Fuel Prices

- Source: U.S. Energy Information Administration.
- All prices are spot or wholesale prices.

(5) U.S. Crude Oil and Petroleum Products Supply, Inventory and Consumption

- Source: U.S. Energy Information Administration.
- Crude Oil and Petroleum Products consist of natural gas plant liquids (ethane, propane, butane, isobutane, pentane), other liquids (hydrogen, oxygenates and renewable fuels like fuel ethanol, motor and aviation gasoline blending components, unfinished oils) and finished petroleum products (motor gasoline, aviation gasoline, kerosene-type jet fuel, kerosene, distillate fuel oil, residual fuel oil, petrochemical feedstocks, napthas, lubricants, waxes, petroleum cokes, asphalt and road oil, still gas, miscellaneous products).
- Supply is comprised of field production, renewable fuels and oxygenate plant net production, refinery and blender net production, imports and net Petroleum Administration for Defense District (PADD) receipts. Net PADD receipts represent the net volume of product movement into and out of each PADD by tanker, barge and pipeline.
- Ending Stocks is a proxy for inventory and is defined as primary stocks held in storage as of midnight on the last day of the month. Primary stocks include products held in storage at, or in, leases, refineries, natural gas processing plants, pipelines, tank farms and bulk terminals with the capacity to store at least 50,000 barrels or that can receive product by tanker, barge or pipeline. Ending Stocks include volumes in the Strategic Petroleum Reserve (SPR) maintained by the Federal Government for use during periods of major supply interruption.
- Product Supplied is a proxy for consumption as it measures the disappearance of said product from primary sources, including refineries, processing plants, blending plants, pipelines and bulk terminals.

DATA CENTER: ABBREVIATIONS & ACRONYMS, DEFINITIONS, DESCRIPTIONS AND CHART NOTES

(6) U.S. Refinery Volumes and Wholesale Prices of Petroleum Products

- Source: U.S. Energy Information Administration Petroleum Marketing Monthly.

(7) U.S. Crude Oil Refinery Input, Distillation Capacity and Refinery Utilization

- Source: U.S. Energy Information Administration Petroleum Supply Weekly.
- Net Input is defined as gross inputs less gross production. Crude Oil Refinery Net Input values are monthly aggregates of weekly net input averages, measured in thousands of barrels per day. The resulting values are represented as monthly average refinery inputs, measured in thousands of barrels per day.
- Refinery Capacity refers to the maximum amount of crude oil designed to flow into the distillation (or crude) unit of the refinery. Operable Capacity is equal to the sum of operating and idle capacity. Idle Capacity is capacity that is not in operation, not under active repair, and can be placed in operation within 30 days.

(8) U.S. Crude Oil and Petroleum Products Imports and Exports

- Source: U.S. Energy Information Administration Petroleum Supply Monthly.
- U.S. Net Imports of Petroleum Products data fall below zero at which point the U.S. becomes a net exporter.

(9) Domestic Natural Gas Citygate Prices per Region

- Source: U.S. Energy Information Administration.
- The prices shown are "Citygate" prices. A Citygate is defined as "a point or measuring station at which a distributing gas utility receives gas from a natural gas pipeline company or transmission system." The Citygate price represents the benchmark price for a given region, accounting for all costs of acquisition, storage, and transportation of gas as well as other charges associated with local distribution companies obtaining the gas for sale to end-users.
- The Western market contains Oregon, Washington, California, Nevada, Arizona, New Mexico, Utah, Wyoming, Colorado, Montana, and Idaho.
- The Midwestern market contains North Dakota, South Dakota, Nebraska, Kansas, Oklahoma, Minnesota, Iowa, Missouri, Arkansas, Wisconsin, Michigan, Illinois, and Indiana.
- The Gulf market contains Texas and Louisiana; the Southeastern market contains Florida, Mississippi, Alabama, Georgia, Tennessee, North Carolina, and South Carolina.
- The Northeastern market contains Kentucky, Virginia, West Virginia, Ohio, Pennsylvania, New York, Vermont, New Hampshire, Maine, Massachusetts, Rhode Island, Connecticut, Delaware, New Jersey, and Maryland.

(10) International Natural Gas Prices

- Sources: U.S. Energy Information Administration (Henry Hub), NGX Clearinghouse (AECO Hub), BP Statistical Review of World Energy 2017 (United Kingdom NBP), World Bank via Index Mundi (Russian NG European Import Price), Knoema via World Bank (Japan LNG Import), my.Elexys.be Market Information (Dutch TTF).
- Henry Hub serves as the primary global pricing benchmark.
- Alberta Energy Company (AECO) Hub serves North America.
- United Kingdom National Balancing Point (NBP) serves the British Isles.
- Dutch Title Transfer Facility (TTF) serves continental Europe.
- Virtual Trading Point (Virtual) does not have a physical location and was created to serve a specific region.
- Japan LNG Import Price represents aggregate import prices of liquefied natural gas in Japan and is a price benchmark serving the Asia-Pacific region. The price includes costs, insurance and freight (CIF).
- All price benchmarks above represent gaseous state natural gas transported by pipeline, with the exception of Japan LNG Import Price, which represents liquid state natural gas transported by ship.
- All prices are spot or wholesale.

(11), (12), (13) and (14) Liquefied Natural Gas Prices

- Sources: Federal Energy Regulatory Commission (U.S., Mexico, Belgium, India), World Bank via Bluegold Research (Brazil/Argentina, Japan/Korea, China, United Kingdom).
- All prices are "landed" prices. Landed price is the price received at the regasification terminal and is based on a netback calculation that removes the costs of pipeline transportation, regasification, waterborne shipping and liquefaction, so as to best represent the effective price to the producer or seller at a specific location or defined point.

DATA CENTER: ABBREVIATIONS & ACRONYMS, DEFINITIONS, DESCRIPTIONS AND CHART NOTES

(15) U.S. Import / Export Liquefied Natural Gas Prices
- Source: U.S. Energy Information Administration.
- All prices are spot or wholesale.

(16) Natural Gas Plant Liquids Prices
- Source: U.S. Energy Information Administration.
- Natural gas liquids spot prices at Mont Belvieu, TX.
- Natural Gas Plant Liquids (NGPL) Composite price includes ethane, propane, butane, isobutane and natural gasoline. Daily closing spot prices for each component are averaged into a monthly series, then weighted according to the portion of a representative natural gas plant liquids barrel that they occupy. The NGPL Composite price excludes natural gas liquids produced at crude oil refineries.

(17) U.S. Natural Gas Production and Consumption
- Source: U.S. Energy Information Administration.
- Marketed Production is equal to gross withdrawals of natural gas from production reservoirs, less gas used for reservoir re-pressuring, nonhydrocarbon gases removed in treating and processing operations, and quantities vented and flared (gas that is disposed of by release into the atmosphere).

(18) U.S. Natural Gas Supply and Inventory
- Source: U.S. Energy Information Administration.
- Working Gas is defined as the total amount of natural gas in storage less the amount of base gas. Base gas is the amount of gas intended as permanent inventory.

(19) U.S. Natural Gas Consumption by End Use
- Source: U.S. Energy Information Administration.

(20) U.S. Natural Gas Plant Liquids Production
- Source: U.S. Energy Information Administration.
- Natural Gas Plant Liquids Production refers to the sum of all production of ethane, propane, butane, isobutane, pentane and pentane plus.

(21) U.S. Liquefied Natural Gas Import and Export Volumes
- Source: U.S. Energy Information Administration.

(22), (23) and (24) North American LNG Import / Export Terminals – Proposed, Approved and Existing
- Source: Federal Energy Regulatory Commission.

(25) Heating Oil Prices
- Source: U.S. Energy Information Administration.
- Spot prices of No 2. heating oil at New York Harbor, alongside the spot prices of West Texas Intermediate crude oil for comparison purposes.

(26) Intermediate Fuel Oil aka "Bunker Fuel" Prices
- Source: Ship & Bunker.
- Intermediate Fuel Oil, also known as IFO and Bunker Fuel, is fuel utilized by ships and barges to facilitate international exchange of various commodities across an array of industries, including energy. It is classified in the maritime field by its viscosity, measured in centistokes. IFO 380 has a maximum viscosity of 380 centistokes and is comprised of 98% residual fuel oil and 2% distillate fuel oil. Under new regulations from the International Maritime Organization, ships must burn fuel with a sulfur content of not more than 0.5 percent or install costly emissions-cleaning scrubbers. Very Low Sulfur Fuel Oil (VLSFO) contains a maximum sulfur content of 0.5 percent.

DATA CENTER: ABBREVIATIONS & ACRONYMS, DEFINITIONS, DESCRIPTIONS AND CHART NOTES

(27) Propane Prices

- Sources: U.S. Energy Information Administration (Conway, KS and Mont Belvieu, TX spot prices), Government of Canada National Energy Board (Edmonton, Canada trading hub prices), Ec.euopa.eu European Commission (Netherlands Retail prices), LPG Australia and news articles (Saudi ARAMCO contract prices), Knoema.com and Petroleum Association of Japan (Japan Imports prices).
- Conway, KS and Mont Belvieu, TX retail prices are propane prices, while Saudi ARAMCO Contracts and Japan Imports are liquefied petroleum gas (LPG) prices. Netherlands Retail and Edmonton, Canada retail prices are auto propane and exclude taxes.
- Propane and LPG prices are represented on the same chart due to the fact that propane is dealt in international marketplaces as LPG, and is referred to as LPG in many European and Asian countries. LPG is comprised of a mixture of propane and butane.
- Conway, KS wholesale prices are typically available only for the winter months (October through March), during which propane demand is driven by cold weather, therefore, the data series displayed is intermittent.

(28) No. 1 Distillate Fuel Oil, Residual Fuel Oil Wholesale, Retail Sales Volume by Refiners

- Source: U.S. Energy Information Administration.
- No. 1 Distillate Fuel Oil consists of No. 1 diesel fuel and No. 1 fuel oil. The former is used in high-speed diesel engines, including those used by metropolitan buses and smaller automobiles. No. 1 fuel oil is utilized primarily as fuel for portable outdoor stoves and heaters.
- Residual Fuel Oil is the general classification for heavy oils that remain after lighter oils are distilled away in the process of petroleum refining. Residual Fuel Oil includes No. 5 and No. 6 fuel oils. The former is used in steam-powered vessels, and the latter is used for electric power generation, space heating, vessel bunkering and industrial processes.
- All wholesale and retail sales volumes refer to those sold by refiners only.

(29) No. 2 Distillate Fuel Oil Wholesale, Retail Sales Volume by Refiners

- Source: U.S. Energy Information Administration.
- No. 2 Distillate Fuel Oil consists of No. 2 diesel fuel and No. 2 fuel oil (heating oil). No. 2 diesel fuel is utilized in on-and-off highway diesel engines, including those used by railroad locomotives, trucks, automobiles and agricultural machinery. No. 2 fuel oil (heating oil) is used for space heating and moderate capacity industrial/commercial burner units.
- All wholesale and retail sales volumes refer to those sold by refiners only.

(30) Propane & Propylene and Distillate Fuel Oil Production and Consumption

- Source: U.S. Energy Information Administration.
- Distillate Fuel Oil is a general classification for a variety of petroleum fractions produced in petroleum distillation operations. Included within this classification are No. 1, No. 2 and No. 4 diesel fuels (used in on-highway and off-highway diesel engines), as well as No. 1, No. 2 and No. 4 fuel oils (used primarily for space heating and electric power generation).
- Propylene is an important petrochemical feedstock that is recovered from refinery or petrochemical processes. It is an olefinic hydrocarbon that is gaseous at standard temperature and pressure.
- Product Supplied is a proxy for consumption as it measures the disappearance of said product from primary sources, including refineries, processing plants, blending plants, pipelines and bulk terminals.

(31) U.S. Ending Stocks of Propane & Propylene and Distillate Fuel Oil

- Source: U.S. Energy Information Administration.
- Distillate Fuel Oil is a general classification for a variety of petroleum fractions produced in petroleum distillation operations. Included within this classification are No. 1, No. 2 and No. 4 diesel fuels (used in on-highway and off-highway diesel engines), as well as No. 1, No. 2 and No. 4 fuel oils (used primarily for space heating and electric power generation).
- Propylene is an important petrochemical feedstock that is recovered from refinery or petrochemical processes. It is an olefinic hydrocarbon that is gaseous at standard temperature and pressure.
- Ending Stocks are defined as the total volume of a propane and propylene/distillate fuel oil held in storage as of the last day of the period. Ending Stocks are monthly averages of Ending Stocks reported at the end of each week during that month, not the amount of Ending Stocks reported at the end of the month. The resulting values are represented as monthly average inventory levels.

DATA CENTER: ABBREVIATIONS & ACRONYMS, DEFINITIONS, DESCRIPTIONS AND CHART NOTES

(32) U.S. Well Starts by Depth
- Source: Platts RigData.
- Total number of well starts by depth on U.S. Land, U.S. Inland Waters and U.S. Offshore, respectively.

(33) Percentage of Crude Oil and Natural Gas Production per Shale Region
- Source: U.S. Energy Information Administration Drilling Productivity Report.
- Percentage of total U.S. crude oil and natural gas production from each of the shale regions.

(34) Drilled but Uncompleted Wells vs. Crude Oil Price
- Source: U.S. Energy Information Administration Drilling Productivity Report.
- Drilled but Uncompleted (DUC) Wells are oil and gas wells that have been drilled but haven't gone through the process of completion (the process of installing well casing, tubing and other equipment that prepares a well for production). The number of DUC wells has significant implications on the domestic supply response to crude oil price changes. If crude oil prices decrease, it is theoretically likely that the amount of DUC wells will increase, and vice versa in an increasing crude oil price scenario. Therefore, the West Texas Intermediate Crude price is tracked for comparative purposes.

(35) Hydraulic Fracturing Sand Producer Price Index
- Source: U.S. Bureau of Labor Statistics.
- Hydraulic Fracturing Sand is sand utilized as a proppant in the process of hydraulic fracturing to help facilitate the extraction of oil and gas from subsurface rock formations.
- The Producer Price Index for Hydraulic Fracturing Sand measures the weighted average period-to-period change in the selling prices received by domestic producers of hydraulic fracturing sand.
- Hydraulic Fracturing Sand Producer Price Index Base = 100 at June 1982.
- Not seasonally adjusted.

(36) and (37) Crude Oil and Natural Gas Production, Rig Count and Production per Rig
- Sources: U.S. Energy Information Administration Drilling Productivity Report (new-well crude oil and natural gas production per rig), Baker Hughes Inc. (rig count).
- New-Well Crude Oil or Natural Gas Production per Rig in each quarter represents the average of each month's value. New-well production per rig is estimated by dividing several trailing months of data on total production from new wells in each region by that region's monthly rig count, lagged by two months. New-well production per rig is intended to indicate an average rig's contribution to total crude oil production from new wells.
- The determination between a crude oil rig and a natural gas rig is made by the operating company at the time of issuance of the rig permit by the relevant state's permitting authority. The classification of a given rig as an oil or gas rig is based solely upon the operator's judgment after drilling an appraisal well and determining its specific hydrocarbon content. For example, if a well's production comes 50% from gas, 20% from Natural Gas Liquids and 30% from oil, it could either be listed as a gas rig, because gas comprises the largest share of hydrocarbons, or an oil rig because oil drives the well's economics. This determination is at the judgment of the operator.

DATA CENTER: ABBREVIATIONS & ACRONYMS, DEFINITIONS, DESCRIPTIONS AND CHART NOTES

(38) U.S. Drilling Rigs by Type

- Source: Baker Hughes North America Rotary Rig Count.
- A vertical well is a well that penetrates the earth vertically below the surface-mounted drilling platform, or the surface location of the well.
- A directional well is classified as one in which the surface location of the well is not vertically above the target reservoir. Thus, the well deviates horizontally from its surface location in order to reach the target reservoir, at a specific azimuth and incline. Azimuth measures the cardinal direction of the well's path relative to the surface location, and incline measures degrees of deviation from vertical.
- Per Baker Hughes methodology, a horizontal well is a type of directional well that deviates from vertical by greater than 80 degrees, or one in which the lower part of the wellbore is parallel to the "pay zone." The pay zone is the section of a reservoir that contains hydrocarbons that can be produced economically.

(39) Wind and Solar Prices

- Source: Lazard's Levelized Cost of Energy Analysis 2012-2020.
- The Levelized Cost of Energy (LCOE) is the net present value of the per-megawatt hour cost of building and operating a generating plant over an assumed financial life and duty cycle. It is utilized as a means of comparing the cost-competitiveness of various energy-generating technologies of unequal life spans, project sizes, capital profiles and capacities.
- The respective levelized costs of each generation technology for each year are a simple average of the high and low values of the cost range associated with that generating technology during that year.
- Solar PV refers to solar photovoltaic.
- Solar PV – Community refers to a solar power plant whose electricity is shared by more than one household.
- Solar PV – Rooftop Residential refers to a Solar PV system that has its solar panels mounted on the rooftop of a residential structure.
- Solar PV – Crystalline Rooftop refers to crystalline solar panels mounted on rooftops. Crystalline panels are a type of solar panel that achieves the photoelectric effect, the chemical process that converts solar (light) energy to electricity, through use of crystalline silicone solar cells.
- Solar PV – Crystalline Utility-Scale refers to a solar power plant that uses crystalline panels to generate power that is fed into the grid, supplying a utility with energy.
- Solar PV – Thin Film Utility-Scale refers to a solar power plant that uses thin-film solar panels to generate power that is fed into the grid, supplying a utility with energy. Thin-film panels differ from crystalline panels in that the photoemissive materials, those which produce an electric current when contacted by sufficient solar energy, are not cut from crystals.
- Solar Thermal refers to solar technology that generates thermal energy to heat water or other fluids, rather than generating electricity.

(40) U.S. Total Renewable Energy Consumption

- Source: U.S. Energy Information Administration Monthly Energy Review.
- Total Renewable Energy Consumption is comprised of hydroelectric, geothermal, solar, wind, wood, waste and biofuels.
- Waste refers to biomass waste and is organic non-fossil material of biological origin that is a byproduct or a discarded product. Biomass waste includes municipal solid waste from biogenic sources, landfill gas, sludge waste, agricultural crop byproducts, straw and other biomass solids, liquids and gases.
- Biofuels are liquid fuels and blending components produced from biomass feedstocks, used primarily for transportation. Biomass is organic, non-fossil material comprised of decayed biological matter.

(41) U.S. Solar, Wind and Hydroelectric Energy Consumption

- Source: U.S. Energy Information Administration Monthly Energy Review.

(42) U.S. Wood, Waste, Biofuels and Geothermal Energy Consumption

- Source: U.S. Energy Information Administration Monthly Energy Review.
- Biofuels are liquid fuels and blending components produced from biomass feedstocks, used primarily for transportation. Biomass is organic, non-fossil material comprised of decayed biological matter.

(43) Corn and Ethanol Prices and Corn Cost per Gallon of Ethanol

- Source: U.S. Department of Agriculture Economic Research Service (corn and ethanol price).

DATA CENTER: ABBREVIATIONS & ACRONYMS, DEFINITIONS, DESCRIPTIONS AND CHART NOTES

(44) U.S. Solar Energy Consumption

- Source: U.S. Energy Information Administration Monthly Energy Review.
- Utility-scale solar energy refers to solar energy generated by plants with a capacity of at least one megawatt that is transmitted via the transmission grid to a high volume of consumers. Thus, Utility-Scale Solar Energy Consumption represents consumption of solar energy generated at plants with capacity of at least one megawatt.
- Distributed solar energy refers to solar energy generated by small-scale generating plants with capacity below one megawatt that is distributed over a specific locality with a small volume of consumers relative to utility-scale energy consumers. Thus, Distributed Solar Energy Consumption represents consumption of solar energy generated at small-scale generating plants.

(45) U.S. Solar Energy Net Generation

- Source: U.S. Energy Information Administration Monthly Energy Review.
- Distributed Solar Photovoltaic Generation refers to energy generated by small-scale photovoltaic generation plants. Small-scale is defined as a plant with capacity below one megawatt. Photovoltaic generation refers to solar energy generated by photovoltaic solar panels.
- Utility-Scale Solar Electricity Net Generation refers to generation of solar energy by plants with capacity equal to or above one megawatt. Net generation is defined as the amount of gross generation less electrical energy consumed by the generating plant for service or auxiliaries.

(46) Distributed Solar Photovoltaic Generation by Sector

- Source: U.S. Energy Information Administration Monthly Energy Review.
- Distributed Solar Photovoltaic Generation refers to energy generated by small-scale photovoltaic generation plants. Small-scale is defined as a plant with capacity below one megawatt. Photovoltaic generation refers to solar energy generated by photovoltaic solar panels.

(47) Utility-Scale Solar Electricity Net Generation by Sector

- Source: U.S. Energy Information Administration Monthly Energy Review.
- Utility-Scale Solar Electricity Net Generation refers to generation of solar energy by plants with capacity equal to or above one megawatt. Net generation is defined as the amount of gross generation less electrical energy consumed by the generating plant for service or auxiliaries.
- Gaps in the data represent periods for which there was no data reported, or the data value was trivially small and thus deemed unnecessary to report.

(48) U.S. Solar Capacity Installations

- Source: Solar Energy Industries Association Q1 2017 Solar Market Insight Report.
- The Investment Tax Credit (ITC) is a federal policy tax incentive that supports the deployment of solar energy in the United States. The ITC allows those who install a solar system to claim up to 30% of the price paid to install the system as a tax credit when filing Federal taxes, thereby significantly discounting the cost associated with transitioning to solar energy.

(49) U.S. Wind Power Capacity Installations

- Source: American Wind Energy Association U.S. Wind Energy Quarterly Market Report.
- Wind Power Generation Capacity Installations refers to non-utility-scale wind power capacity additions. Utility-scale is defined as installations of wind turbines larger than 100 kilowatts.

(50) Utility-Scale Wind Power Capacity Installations

- Source: American Wind Energy Association U.S. Wind Energy Quarterly Market Report.
- Utility-Scale Wind Capacity includes installations of wind turbines larger than 100 kilowatts. Capacity installations may not always equate to an equal increase in cumulative wind power capacity due to decommissioned, uprated and repowered wind turbines.

DATA CENTER: ABBREVIATIONS & ACRONYMS, DEFINITIONS, DESCRIPTIONS AND CHART NOTES

(51) Wind Power Under Construction or in Advanced Development

- Source: American Wind Energy Association (AWEA) U.S. Wind Energy Quarterly Market Report.
- AWEA defines projects as being "in advanced development" if it has not yet begun construction, but has either signed a power purchase agreement, announced a firm turbine order, or been announced to proceed under utility ownership.

(52) U.S. Aggregated Energy Consumption by Sector

- Source: U.S. Energy Information Administration.
- Energy consumed by the electric power sector is primary energy only. Primary energy is energy in its original form, before any transformation to secondary or tertiary forms of energy. For example, coal can be converted to synthetic gas and then to electricity. Under these circumstances, coal is primary energy, synthetic gas is secondary energy and electricity is tertiary energy.

(53) U.S. Aggregated Energy Consumption by Source

- Source: U.S. Energy Information Administration.
- Total consumption of each category of energy is as accurate as possible. However, some data is unavailable or unreported and, thus, some total consumption values may be understated.
- Fossil Fuels includes coal, petroleum-based products, natural gas and natural gas-based products.
- Renewable Energy includes conventional hydroelectric, solar, biomass, nuclear, geothermal and wind.
- Biomass is a renewable energy source derived from organic matter such as wood, crop waste, or garbage, with wood being the largest contributor.
- Fossil Fuels and Renewable Energy consumption represent consumption of primary energy, which is energy in its original form, before transformation to secondary or tertiary forms of energy. Thus, to arrive at total energy consumption, Electricity Retail Sales (representing consumption of secondary and tertiary forms of energy) is added alongside consumption of Fossil Fuels and Renewable Energy.
- Electrical System Energy Losses are a deduction from total energy consumption, and are incorrectly represented as positively contributing to total energy consumption. Thus, total energy consumption figures in each year are overstated by the amount of electrical system energy losses.

(54) Electricity Prices by Sector

- Source: U.S. Energy Information Administration.

(55) Commercial Crude Oil Inventory

- Source: U.S. Energy Information Administration.
- U.S. Ending Stocks of Commercial Crude Oil represents stocks (inventory) of crude oil held in storage for commercial use. This figure excludes both lease stock and volumes in the Strategic Petroleum Reserve (SPR). Lease stock is crude oil stored in tanks at sites where producers are drilling on leased land. They're excluded from total commercial crude oil inventory because they aren't yet available for commercial use. The SPR is petroleum maintained by the Federal Government for use during periods of major supply interruption.
- Ending stocks (inventory) are primary stocks of crude oil held in storage as of midnight on the last day of the month. Primary stocks include crude oil held in storage at, or in, leases, refineries, natural gas processing plants, pipelines, tank farms and bulk terminals with the capacity to store a minimum of 50,000 barrels of petroleum products or that can receive petroleum products by tanker, barge or pipeline.

(56) Petroleum and Other Liquids Commercial Inventory

- Source: U.S. Energy Information Administration.
- Hydrocarbon Gas Liquids (HGLs) are molecules of carbon and hydrogen in various combinations. HGLs include alkanes, or paraffins (ethane, propane, butane, isobutene, natural gasoline) and alkenes, or olefins (ethylene, propylene, butylene, isobutylene).
- Unfinished Oils are all oils that require further processing and are produced by partial refining of crude oil. Unfinished Oils include napthas and lighter oils, kerosene and light gas oils, heavy gas oils and residuum.
- Other Hydrocarbons/Oxygenates are substances that increase the amount of oxygen in various gasoline blends when added to them. This category includes fuel ethanol, methanol and methyl tertiary butyl ether (MTBE).
- Total Motor Gasoline includes finished motor gasoline and motor gasoline blending components.

DATA CENTER: ABBREVIATIONS & ACRONYMS, DEFINITIONS, DESCRIPTIONS AND CHART NOTES

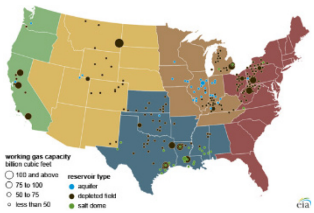
(56) Petroleum and Other Liquids Commercial Inventory (continued)

- Distillate Fuel Oil is a general classification for a variety of petroleum fractions produced in petroleum distillation operations. Included within this classification are No. 1, No. 2 and No. 4 diesel fuels (used in on-highway and off-highway diesel engines), as well as No. 1, No. 2 and No. 4 fuel oils (used primarily for space heating and electric power generation).
- Residual Fuel Oil is the general classification for heavy oils that remain after lighter oils are distilled away in the process of petroleum refining. Residual Fuel Oil includes No. 5 and No. 6 fuel oils. The former is used in steam-powered vessels, and the latter is used for electric power generation, space heating, vessel bunkering and industrial processes.
- Other Oils include aviation gasoline blending components, finished aviation gasoline, kerosene, petrochemical feedstocks, special napthas, lubricants, waxes, petroleum coke, asphalt and road oil, still gas and miscellaneous products.

(57) Natural Gas Underground Storage Capacity

- Source: U.S. Energy Information Administration.
- Underground Storage Capacity refers to total natural gas storage capacity in underground storage facilities called "salt domes," which are caverns hollowed out in subsurface salt formations. Salt domes are the primary means of natural gas storage in the United States.

U.S. Underground Natural Gas Storage Facilities by Type (July 2015)



(58) Commercial Crude Oil Refinery, Tank and Underground Storage Capacity and Utilization

- Source: U.S. Energy Information Administration.
- Commercial Crude Oil Storage Capacity refers to working storage capacity. Working capacity is the volume difference between a crude oil storage tank's maximum safe fill capacity and the volume below which pump suction is ineffective, called tank bottoms.
- Crude Oil Shell Storage Capacity is the design capacity of a petroleum storage tank. It includes tank bottoms, working storage capacity and contingency space. Contingency space is defined as available storage space above the defined maximum operating inventory level that remains empty during normal operations. Shell Storage Capacity is always greater than or equal to working storage capacity.
- Crude Oil Storage Capacity data is released only twice per year for the months of March and September. Thus, the data series excludes inventory levels for all months other than March and September of each year.

(59) Crude Oil and Natural Gas Pipeline Mileage

- Source: Pipeline and Hazardous Materials Safety Administration.
- The chart includes information from only Federal Energy Regulatory Commission-regulated pipeline companies.
- Crude Oil Pipeline Mileage represents total mileage of pipelines dedicated to the transport of crude oil and those dedicated to the transport of petroleum products. Pipeline Mileage for crude oil includes trunk lines only.
- Pipeline Mileage for natural gas includes both trunk and gathering lines.
- Trunk lines are synonymous with transmission lines, which are large, cross-country pipelines that move oil or gas from producing areas to refineries. Gathering lines are pipelines that transport oil or gas from the area in which it was produced to a storage facility which acts as an intermediate stop before transportation by truck, railcar, or trunk line.

(60) Crude Oil and Petroleum Products Pipeline Movements Between Petroleum Administration for Defense Districts (PADDs)

- Source: Federal Reserve Bank of St. Louis, with data provided by the U.S. Energy Information Administration.
- Crude Oil and Petroleum Products Pipeline Movements Between PADDs represents the total volume of crude oil and petroleum products transported between each PADD. The data does not include movements within each PADD.

DATA CENTER: ABBREVIATIONS & ACRONYMS, DEFINITIONS, DESCRIPTIONS AND CHART NOTES

(61) Natural Gas Cumulative Interstate Pipeline Systems Capacity

- Source: U.S. Energy Information Administration.
- Cumulative Interstate Capacity refers to capacity of natural gas pipelines crossing between states. Thus, capacity of intrastate pipelines is not included and the data should not be interpreted as representing total capacity of natural gas pipelines.

(62) Crude Oil and Petroleum Products Exports to Mexico

- Source: U.S. Energy Information Administration.
- Petroleum Products include pentanes plus, liquefied petroleum gases, unfinished oils, finished motor gasoline, motor gasoline blending components, oxygenates, fuel ethanol, distillate fuel oil, kerosene, kerosene-type jet fuel, special napthas, residual fuel oil, waxes, petroleum coke, asphalt and road oil, lubricants and miscellaneous products.

(63) Truck Tonnage Index

- Source: U.S. Department of Transportation, Bureau of Transportation Statistics.
- The Truck Tonnage Index measures the gross tonnage of freight that is transported by motor carriers for a given month. The Index serves as an indicator of shipping activity in the United States.
- Created by the U.S. Department of Transportation, Bureau of Transportation Statistics via information published in the American Trucking Association (ATA) Monthly Truck Tonnage Report.
- In January 2018, ATA revised the seasonally adjusted index back five years as part of its annual revision. In addition, ATA re-indexed the seasonally adjusted and not seasonally adjusted tonnage indexes to 2015 = 100 back to 1973.

(64) Heavy Truck Sales

- Source: Federal Reserve Bank of St. Louis.
- Heavy Trucks are trucks with more than 14,000 pounds gross vehicle weight.

(65) Trucking Conditions Index

- Source: FTR Transportation Intelligence.
- The Trucking Conditions Index summarizes the status of the trucking industry through tracking changes in six major conditions including freight volumes, freight rates, fleet capacity, fleet bankruptcies, fuel price and financing.
- An index value greater than zero represents a positive environment in the truck market, and an index value below zero represents a negative environment. An index value above 10 is a sign that volumes, prices and margin are in a solidly favorable range.

(66) Freight Transportation Services Index

- Source: Federal Reserve Bank of St. Louis.
- The Freight Transportation Services Index measures the output of the for-hire freight transportation industry and consists of data from for-hire trucking, rail, inland waterways, pipelines and air freight.

(67) Crude Oil Refinery Receipts by Transportation Method

- Source: U.S. Energy Information Administration.
- Refinery Receipts by Pipeline, Tanker, Barge, Truck and Rail refer to total volumes of crude oil of domestic and international origin that are in transit to, or received by, domestic refineries. Volumes of crude oil in transit via pipeline are excluded from receipts. Foreign crude oil is included in receipts only after entry through customs.
- Refinery inputs track volumes of crude oil that are entered into refining processes (e.g., distillation units, cokers, etc.).
- The volume difference between refinery receipts and refinery inputs is that which is in transit but not yet received by refineries plus that which has been received and is held in bonded storage, awaiting entry into refining processes.

(68) Crude Oil Movements by Tanker and Barge Movements Between Petroleum Administration for Defense Districts (PADDs)

- Source: U.S. Energy Information Administration.
- The data series shown on the chart is an aggregate of all crude oil movements between Petroleum Administration for Defense Districts (PADDs). This includes crude oil movement from PADD 1 to PADD 2 and PADD 3; PADD 2 to PADD 1 and PADD 3; and PADD 3 to PADD 1, PADD 2 and PADD 5.
- PADD 1 is the East Coast region, PADD 2 is the Midwest region, PADD 3 is the Gulf Coast region and PADD 5 is the West Coast region.

DATA CENTER: ABBREVIATIONS & ACRONYMS, DEFINITIONS, DESCRIPTIONS AND CHART NOTES

(69) Movements of Crude Oil by Rail
- Source: U.S. Energy Information Administration.

(70) Average Weekly Rail Carloads of Petroleum and Petroleum Products
- Source: Association of American Railroads.
- Monthly aggregates of the average weekly number of rail carloads transporting petroleum and petroleum products in the United States.
- Excludes the U.S. operations of Canadian railroads.

(71) U.S. Manufacturers' Monthly Shipments and U.S. Purchasing Managers' Index (PMI®)
- Sources: For Manufacturers' Monthly Shipments - U.S. Census Bureau Manufacturers' Shipments, Inventories and Orders Survey; and for U.S. Purchasing Managers' Index (PMI®) – Institute for Supply Management Manufacturing Report on Business®.
- A PMI® above 50 represents expansion within the manufacturing sector compared with the prior month.

(72) U.S. New Housing Starts and Total U.S. Construction Spending
- Source: U.S. Census Bureau.

(73) London Interbank Offered Rate (LIBOR), Based on U.S. Dollar
- Source: ICE Benchmark Administration Limited via the Federal Reserve Bank of St. Louis.
- The London Interbank Offered Rate is the average interest rate at which leading banks borrow funds of a sizeable amount from other banks in the London market. LIBOR is the most widely used benchmark or reference rate for short term interest rates. The chart values are monthly percent averages of daily figures and are not seasonally adjusted.

(74) Bank Prime Loan Interest Rates
- Source: Federal Reserve Bank of St. Louis.
- The Bank Prime Loan Interest Rate is that posted by a majority of top 25 (by assets in domestic offices) insured, U.S.-chartered commercial banks. Prime is one of several base rates used by banks to price short-term business loans.
- The chart values are monthly percent averages of daily figures and are not seasonally adjusted.

(75) Commercial and Industrial Loans vs. Banking Standards
- Source: Federal Reserve Bank of St. Louis.
- Net Percentage of Domestic Banks Tightening Standards for Commercial and Industrial Loans to large and middle-market firms. Quarterly, not seasonally adjusted.
- Commercial and Industrial Loans, All Commercial Banks. Monthly, seasonally adjusted.

(76) U.S. Treasury Yield Curve
- Source: U.S. Treasury.
- U.S. Treasury Yield Curve rates are commonly referred to as Constant Maturity Treasury (CMT) rates. Yields are interpolated by the U.S. Treasury from the daily yield curve.
- The curve, which relates the yield on a security to its time to maturity, is based on the closing market bid yields on actively traded U.S. Treasury securities in the over-the-counter market.

(77) Corporate Spreads to Treasuries by Quality
- Source: Federal Reserve Bank of St. Louis.
- Corporate Spreads to Treasuries represent the spread, or difference, between the yield curve of an index of corporate bonds of a given rating category and the spot rate U.S. Treasury curve. The spot rate U.S. Treasury curve is a yield curve that uses U.S. Treasury spot rates rather than yields, and represents the rate for a zero-coupon U.S. Treasury bond.
- The corporate bond yield indexes are Bank of America Merrill Lynch Option-Adjusted Spread (OAS) Indexes for all bonds with a given investment rating of AA, BB or CCC or below that are publically issued in the U.S. domestic market. Each respective OAS index is calculated using each constituent bond's OAS, weighted by market capitalization. A bond's OAS is the bond's yield spread relative to the risk-free rate of return, typically the U.S. Treasury securities yield, adjusted to account for an embedded option.

HOT TOPICS

LNG INFRASTRUCTURE: BRIGHT PROMISE AND LOOMING THREATS

U.S. liquefied natural gas (LNG) exports remain the key driver of future growth in natural gas production and infrastructure development, with seven terminals in operation, four under construction, and twelve more fully permitted and awaiting financing. LNG exports have grown from nothing five years ago to nearly 13 billion cubic feet per day (bcf/d) today, adding about 15% to total U.S. demand.

Three terminals are under construction on the Gulf Coast, along with one in Mexico that will draw U.S. natural gas. They will add another 9 bcf/d to be put in operation between 2024 and 2026. For the next two years, exports will not grow further and will drive little additional upstream production beyond today's levels. But between 2024 and 2026, U.S. production will need to grow 9% above today's rates just to supply these new terminals.

After 2026, that number is likely to grow significantly. Six more terminal developers have announced they expect to reach final investment decisions this year or next, for a total of another 10+ bcf/d to be brought online beginning in 2026. If all these projects are built as planned, between 2024 and 2027 there will be nearly 20 bcf/d of new export-driven demand for natural gas - a 20% increase over today's production.

The current industry average for investment needed to build and bring 1 bcf/d of export capacity on stream is $4.5 billion. Adding 20 bcf/d means over $90 billion of investment, much of which will be for engineering, construction, equipment and materials.

Beyond the construction investments for export capacity, this much additional natural gas production - potentially 20+% beyond current levels - also promises tremendous new investment potential in upstream production complexes, gathering systems, and processing and storage facilities.

Although it's not certain how much additional production growth potential exists in Gulf Coast shale plays, it is likely that significant new volumes will also need to come from our biggest producing area - the Appalachian Basin - which now accounts for over 40% of U.S. shale gas production.

That is a bright outlook for natural gas infrastructure. But what are the risks to this scenario?

HOT TOPICS

LNG INFRASTRUCTURE: BRIGHT PROMISE AND LOOMING THREATS (CONTINUED)

First, there is the European demand outlook, in context with what it takes for an LNG terminal developer to secure long-term financing for what is typically a $5 to $15 billion project, before it can be committed to construction. With rare exception, lenders have required firm long-term purchase agreements to be in place - typically for 20 years - from a terminal's prospective customers, whether they be energy companies, LNG traders or sovereign states.

Europe however, despite its current drive to replace Russian supplies of roughly 35 bcf/d, claims it is maintaining its commitment to eliminate fossil fuels over the next 10 years. This adds risk for traders and energy companies, which, to secure a firm supply source, must bet that Europe will either abandon or fail to achieve that goal, or that unknown customers in Asia will take up any slack from lower or no European demand after 10 years has passed. Therefore, long-term purchase agreements have been hard to come by, and so has financing, which is why many final investment decisions on our side have been delayed.

There is also a significant timing risk. While American developers are vying for supply contracts from European and Asian customers, so are developers in Canada, Australia, Qatar and Africa. If American projects are delayed, foreign competitors may beat us to market. And if U.S. natural gas prices stay high relative to other countries, we may lose some of our competitive advantage.

Another uncertainty is on the supply side. If production capacity from the Gulf Coast shale plays is maxed out after another 10-15 bcf/d of production is added, more new gas will have to come from the Appalachian Basin. That is a problem because all pipelines out of that basin are running near full capacity. New ones will need to be built to supply the LNG market or to replace gas from elsewhere being diverted to LNG terminals.

However, as we have seen over the last couple years, opponents of pipelines in the Northeast have stopped several major new projects, mainly by challenging permits in court. Add new permitting hurdles, such as a likely new FERC permitting regime regarding greenhouse gas impacts and mitigation, along with tougher Clean Water Act permitting requirements, SEC carbon footprint scoring, Endangered Species Act challenges, National Forest crossing hurdles, and so on seemingly endlessly. These factors add risk into the equation making operators reluctant to propose new pipeline projects leading out of the Northeast.

HOT TOPICS

LNG INFRASTRUCTURE: BRIGHT PROMISE AND LOOMING THREATS (CONTINUED)

Another growing risk, and one we are increasingly concerned about, is the possibility that fossil fuel opponents will prevail upon the current Administration to limit or ban gas and/or oil exports on the premise that the recent run-up in prices amounts to a national emergency, which could confer authority for an administrative ban without action by Congress.

This ignores the fact that a primary cause of the rapid rise in natural gas prices is that midstream capacity is maxed out while demand continues to rise - and not from LNG exports, which as noted earlier are capped for now at current levels.

On the bright side, we are optimistic that political pressure in favor of increasing natural gas production and infrastructure will grow, potentially from such factors as energy cost inflation and/or the threat of electric supply disruptions. For example, the New England grid relies on natural gas for 60% - 70% of its electricity generation, at the same time new pipelines from the Marcellus have been blocked. With growth in electricity demand, the status quo may be unsustainable over a hot summer or a cold winter.

Much of the uncertainty around the energy infrastructure investment environment hinges on the political context of the day. There will be many opportunities over the next two years for campaigns to make the case to voters about why their energy costs have soared and why their energy security is threatened. How this plays out in terms of control of Congress and the White House, as well as at the state level, will have much to do with the future direction of our industry, as it did with tremendous impacts when control changed in 2020.

HOT TOPICS

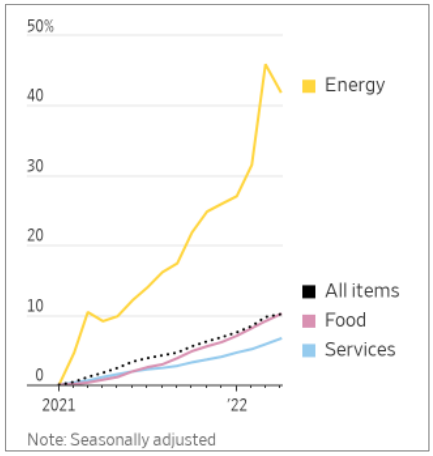
ENERGY INFLATION IS LIKELY TO PERSIST

The U.S. annual rate of inflation has risen since early 2021 when the economy rebounded from the pandemic leading to supply disruptions and other factors that put upward pressure on prices. The Russian invasion of Ukraine in March, the ease in COVID lockdowns in Shanghai and Beijing, the announcement by the European Union that it will reduce crude oil imports from Russia by 90% by the end of the year, and the increase in travel, created a perfect storm of conditions leading to higher prices.

Energy disruptions caused by the Ukraine war and the lack of workers to fill vacancies in the U.S. are exacerbating strains on the economy's ability to meet demand without affecting prices. The Labor Department reported that the Consumer Price Index (CPI) increased 8.6% in May from the same month a year ago, the fastest increase in inflation since December 1981. May's inflation was driven in part by sharp rises in the prices for energy, which rose 34.6% from a year earlier, and groceries, which jumped 11.9%, the biggest increase since 1979.[1]

Consumer Price Index
Change from a Year Earlier[2]

Consumer Price Index
Change Since January 2021[2]



Prices for energy, which impact virtually every sector of the economy, were further broken down in the May CPI as follows: gasoline increased 48.7%; fuel oil rose 106.7%, representing the largest increase in the history of the series which dates back to 1935; and natural gas increased 30.2%, the largest increase since July 2008.[1]

While the war in Ukraine and supply chain impacts from Russian sanctions have increased price pressures, energy prices were already escalating well before the conflict. In the year preceding Russia's invasion of Ukraine, gasoline prices had increased by about 40%.[3]

Historically, oil prices have had more influence on the Producer Price Index (PPI), which measures the prices of goods at the wholesale level, than the CPI, which measures the prices consumers pay for goods and services. On an annualized basis, the PPI rose 10.8% in May from a year ago, down slightly from 10.9% in April.[1] May marked the sixth consecutive month of

HOT TOPICS

ENERGY INFLATION IS LIKELY TO PERSIST (CONTINUED)

double-digit annual gains for producer prices. Continued pressure on producer prices may signal future rises in CPI as costs pass through supply chains.[4]

Approximately 71% of the 7.2 billion barrels of petroleum the U.S. consumed in 2021 was used for various types of fuels, such as gas, diesel, and jet fuel. This demand pushes up transportation costs and makes shipping everything from refrigerator components to everyday items more expensive. Most of the other 29% of the oil Americans use is contained in much of the things people buy, both in the packaging and in the products themselves.[5] Petrochemicals derived from petroleum are used to manufacture clothes, computers and more. For example, the quantity of oil-based polyester in clothing has doubled since 2000. Over half of all fibers produced around the world are now made from petroleum, which equates to over 1% of all oil consumed.[6]

Crude oil prices increased as COVID restrictions began to ease and the war in Ukraine continued. According to Eurostat, Russia is the main supplier of crude oil, natural gas and solid fossil fuels to the European Union, and the invasion of Ukraine presented an urgent need in Europe to replace natural gas from Russia.

These factors contributed additional upward pressure on prices that were already high because of low inventory levels globally. The price of West Texas Intermediate crude oil rose from around $40 a barrel in 2020 to more than $120 a barrel in early June,[5] and the average price of a gallon of regular unleaded gasoline in the U.S. hit a record high of $5 on June 10th.[2]

Natural gas prices in the United States rose substantially over the past year and a half, after many years of relatively low prices that led to a steady rise in the use of natural gas for electricity generation. Just before the pandemic, prices fell below $2.00 per million British thermal units (MMBTu) as domestic production reached new highs. The fuel got even cheaper as economic activity fell, hitting its lowest price since the mid 1990s during the pandemic.

Natural gas prices are rising now due to three factors: inventories below the five-year average; steady demand for U.S. liquefied natural gas (LNG) exports; and high demand for natural gas from the electric power sector. The U.S. Energy Information Administration (EIA) expects natural gas prices to average $8.69 MMBtu in the third quarter of this year. U.S. natural gas inventories ended May at 2.0 trillion cubic feet, 15% below the five-year average. Europe has become the main destination for U.S. LNG exports accounting for 74% of total U.S. LNG exports during the first four months of this year.[5]

Even before COVID, energy producers cut back on investment and less profitable projects under pressure from low prices and institutional shareholders demanding higher returns. Producers slashed output further during the height of the pandemic, when the need for petroleum products fell significantly. Demand has rebounded as business and leisure travel resumed and manufacturing returned, however, energy supply remains constrained by previously mentioned factors.

Oil companies are reluctant to increase production after pledging capital discipline to shareholders and investors. Like other commodities, energy prices are dictated by basic supply and demand. Energy companies are still recovering from pandemic-related lockdowns and are struggling to source the materials and workers necessary to expand production. Global shortages and transportation bottlenecks have pushed inputs like tubular steel and fracking sand to historically high prices with other inputs being unavailable altogether. These restrictions are limiting new exploration globally and preventing supply from keeping up with demand.[3]

HOT TOPICS

ENERGY INFLATION IS LIKELY TO PERSIST (CONTINUED)

In addition, the rapid rise in American fuel exports has pushed gasoline prices up and is pressuring the U.S. price of natural gas. Seaborne shipments of gasoline, diesel and jet fuel departing the U.S. in March, April, and May of this year averaged 32% more compared with the same period last year, and 11% higher than the same period in 2019.[7]

Exports of natural gas reached a record in March, up to approximately 22% of U.S. gas production, according to the EIA. In March, President Biden agreed to more than double the volume of LNG the U.S. exports to Europe in the coming years. Last year Europe imported a record amount from the U.S., and in December the U.S. overtook Qatar and Australia to become the world's largest exporter of LNG. The EIA predicts LNG exports will be 16% more than last year.[8]

Constrained refining capacity is beginning to play a role in the supply of petroleum products as well. Since the beginning of the pandemic, at least 13 U.S. refineries shut down, significantly cut operations or switched to refining other products. The loss accounts for more than 1.4 million barrels of oil per day, or more than 7% of the country's entire capacity of gasoline, diesel and jet fuel. Worldwide refining production has declined by an additional 2.1 million barrels per day.[9]

According to the International Energy Agency (IEA), global demand for oil will rise above pre-pandemic levels next year. However, oil producers are expected to struggle to keep up with the rapid pace of rebounding oil demand. OPEC+ oil producers (an alliance of OPEC and non-OPEC producers led by Russia) have struggled to meet their targets for modest supply hikes due to technical issues and capacity constraints. The IEA expects OPEC+'s issues to continue into 2023.

Addressing these issues will not instantly increase oil and gas supplies. Energy production requires lead time. The breadth and persistence of these issues implies that for energy inflation to ease, demand must decline.

May's resurgence in price increases puts pressure on the Federal Reserve Bank to raise interest rates aggressively to attempt to tame inflation. Raising interest rates will make it more expensive for oil companies to borrow money to fund increased production, which could hold back any additional flow of oil and gas.

Sources:
1) U.S. Bureau of Labor Statistics.
2) The Wall Street Journal, U.S. Inflation Hit 8.6% in May, June 10, 2022.
3) U.S. Chamber of Commerce, Combating Inflation: What's Behind High Energy Prices and What to Do About It, May 5, 2022.
4) The Wall Street Journal, U.S. Supplier Price Gains Accelerated in May, June 14, 2022.
5) U.S. Energy Information Administration.
6) The Conversation, Soaring Crude Prices Make the Cost of Pretty Much Everything Else Go Up Too Because We Almost Literally Eat Oil, March 28, 2022.
7) The Wall Street Journal, High U.S. Fuel Exports Are Contributing to $5-a-Gallon Gas, June 16, 2022.
8) The Wall Street Journal, The LNG Export Boom Is Draining U.S. Natural-Gas Supplies and Lifting Prices, March 30, 2022.
9) Transport Topics, Diesel's High Cost Due to Refining Capacity Shortage, Exports, Experts Say, May 19, 2022.

PUBLIC AND TRANSACTION COMPARABLES BY SEGMENT

PETROLEUM PRODUCTS

EQUITY COMPARABLES (1)

Petroleum Products (United States & Canada)

Company	LTM[2] Revenues	LTM[2] EBITDA	Margin	Stock Price 03/31/22	% of 52-Week High	Market Cap	Total Enterprise Value[3]	TEV / LTM Revenues	TEV / LTM EBITDA	Net Debt[4]/ EBITDA
Calumet Specialty Products Partners, L.P.	$3,646	$22	0.6%	$13.61	78.1%	$1,071	$2,794	0.8x	127.0x	80.4x
Chevron Corporation	176,844	38,522	21.8	162.83	93.2	317,120	347,190	2.0x	9.0x	0.5x
CVR Energy, Inc.	8,152	725	8.9	25.54	95.8	2,568	3,972	0.5x	5.5x	1.3x
EnLink Midstream, LLC	7,772	1,077	13.9	9.65	93.9	4,671	10,756	1.4x	10.0x	4.0x
Gibson Energy Inc.	6,640	331	5.0	20.03	92.7	2,969	4,314	0.6x	13.0x	3.6x
Exxon Mobil Corporation	309,269	53,895	17.4	82.59	90.3	349,652	402,985	1.3x	7.5x	0.7x
HF Sinclair Corporation	22,344	1,260	5.6	39.85	97.9	8,896	12,864	0.6x	10.2x	2.6x
Keyera Corp.	4,531	747	16.5	25.38	88.6	5,610	8,559	1.9x	11.5x	3.7x
Marathon Petroleum Corporation	135,923	8,572	6.3	85.50	98.2	47,758	71,198	0.5x	8.3x	2.0x
Parkland Corporation	19,903	973	4.9	29.61	88.3	4,601	9,113	0.5x	9.4x	5.0x
Phillips 66	125,846	3,137	2.5	86.39	91.6	41,561	56,401	0.4x	18.0x	3.8x
NuStar Energy L.P.	1,667	707	42.4	14.42	69.6	1,590	6,220	3.7x	8.8x	4.5x
Valero Energy Corporation	125,765	6,673	5.3	101.54	98.5	41,572	53,962	0.4x	8.1x	1.6x
Median			**6.3%**		**92.7%**			**0.6x**	**9.4x**	**3.6x**
Mean			**11.6%**		**90.5%**			**1.1x**	**18.9x**	**8.7x**

SELECTED TRANSACTIONS

Announced / Closed Date	Target(s)	Acquirer	Total Enterprise Value (TEV)	TEV / Revenues	TEV / EBITDA
4/24/2019	Anadarko Petroleum Corporation (NYSE:APC)	Occidental Petroleum Corporation (NYSE:OXY)	$57,809.2	4.4x	7.6x
10/22/2018	EnLink Midstream Partners, LP (NYSE:ENLK)	EnLink Midstream, LLC (NYSE:ENLC)	$12,923.5	1.7x	12.2x
8/27/2018	Blue Ridge Mountain Resources, Inc. (OTCPK:BRMR)	Eclipse Resources Corporation (NYSE:ECR)	$348.0	3.6x	12.8x
8/1/2018	Energy Transfer Operating, LP	Energy Transfer, LP (NYSE:ET)	$69,430.8	2.1x	10.9x
5/17/2018	Enbridge Energy Partners, LP (NYSE:EEP)	Enbridge Inc. (TSX:ENB)	$15,925.8	6.6x	10.1x
4/30/2018	Andeavor (NYSE:ANDV)	Marathon Petroleum Corporation (NYSE:MPC)	$35,103.0	0.9x	12.7x
11/8/2017	Alon USA Partners, LP	Delek US Holdings, Inc. (NYSE:DK)	$1,050.4	0.5x	5.9x
4/5/2017	Houghton International Inc.	Quaker Chemical Corporation (NYSE:KWR)	$1,415.4	-	11.8x
2/2/2017	ONEOK Partners, LP	ONEOK, Inc. (NYSE:OKE)	$23,722.4	2.7x	12.9x

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PUBLIC AND TRANSACTION COMPARABLES BY SEGMENT

NATURAL GAS

EQUITY COMPARABLES (1)

Natural Gas (United States & Canada)

Company	LTM[2] Revenues	LTM[2] EBITDA	LTM[2] Margin	Stock Price 03/31/22	% of 52-Week High	Market Cap	Total Enterprise Value[3]	TEV / LTM Revenues	TEV / LTM EBITDA	Net Debt[4]/ EBITDA
Alliant Energy Corporation	$3,836	$1,495	39.0%	$62.48	98.8%	$15,670	$23,540	6.1x	15.7x	5.3x
AltaGas Ltd.	9,115	1,142	12.5	22.43	95.3	6,291	14,599	1.6x	12.8x	5.9x
Atmos Energy Corporation	3,837	1,383	36.0	119.49	98.8	16,183	23,834	6.2x	17.2x	5.3x
Avista Corporation	1,488	449	30.2	45.15	92.4	3,232	5,852	3.9x	13.0x	5.6x
Baytex Energy Corp.	1,412	669	47.4	4.37	82.2	2,485	3,596	2.5x	5.4x	1.6x
Calumet Specialty Products Partners, L.P.	3,646	22	0.6	13.61	78.1	1,071	2,794	0.8x	127.0x	80.4x
Cenovus Energy Inc.	42,662	7,367	17.3	16.69	96.9	33,098	43,575	1.0x	5.9x	1.2x
Chesapeake Utilities Corporation	602	208	34.6	137.76	94.2	2,433	3,228	5.4x	15.5x	3.7x
Corning Natural Gas Holding Corporation	41	10	23.2	24.26	98.4	75	159	3.9x	16.6x	8.4x
Crestwood Equity Partners LP	5,120	493	9.6	29.92	88.2	2,932	6,053	1.2x	12.3x	5.8x
Dominion Energy, Inc.	14,373	7,187	50.0	84.97	99.2	68,883	111,816	7.8x	15.6x	5.8x
EnLink Midstream, LLC	7,772	1,077	13.9	9.65	93.9	4,671	10,756	1.4x	10.0x	4.0x
Enbridge Inc.	40,074	9,512	23.7	46.10	99.0	93,374	162,662	4.1x	17.1x	6.4x
Enterprise Products Partners L.P.	44,660	7,855	17.6	25.81	98.7	56,172	84,422	1.9x	10.7x	3.8x
Epsilon Energy Ltd.	48	26	55.0	6.45	93.1	153	126	2.7x	4.8x	(1.1)x
Eversource Energy	10,509	3,311	31.5	88.19	95.2	30,403	50,817	4.8x	15.3x	6.3x
Genesis Energy, L.P.	2,236	412	18.4	11.71	86.9	1,435	5,964	2.7x	14.5x	7.3x
National Fuel Gas Company	1,999	1,073	53.7	68.70	98.1	6,282	9,007	4.5x	8.4x	2.6x
New Jersey Resources Corporation	2,488	393	15.8	45.86	98.2	4,405	7,387	3.0x	18.8x	7.1x
Northwest Natural Holding Company	895	281	31.4	51.72	89.7	1,741	3,237	3.6x	11.5x	5.1x
MDU Resources Group, Inc.	5,869	828	14.1	26.65	76.1	5,419	8,232	1.4x	9.9x	3.5x
OGE Energy Corp.	2,612	971	37.2	40.78	99.8	8,164	13,185	5.0x	13.6x	5.4x
ONE Gas, Inc.	2,155	529	24.6	88.24	98.4	4,733	8,932	4.1x	16.9x	7.9x
ONEOK, Inc.	18,790	3,186	17.0	70.63	97.6	31,516	45,272	2.4x	14.2x	4.3x
RGC Resources, Inc.	80	25	30.6	21.61	83.1	212	364	4.5x	14.8x	4.7x
South Jersey Industries, Inc.	2,142	567	26.5	34.55	97.8	4,048	7,643	3.6x	13.5x	5.8x
Southwest Gas Holdings, Inc.	4,062	787	19.4	78.29	96.8	5,234	11,646	2.9x	14.8x	7.2x
Summit Midstream Partners, LP	398	180	45.2	14.88	31.9	151	1,779	4.5x	9.9x	7.3x
Targa Resources Corp.	18,276	2,149	11.8	75.47	97.6	17,227	27,629	1.5x	12.9x	3.3x
TC Energy Corporation	10,818	6,997	64.7	56.48	96.4	55,395	100,244	9.3x	14.3x	6.0x
Median			**25.5%**		**96.6%**			**3.6x**	**13.9x**	**5.5x**
Mean			**28.4%**		**91.7%**			**3.6x**	**16.8x**	**7.5x**

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PUBLIC AND TRANSACTION COMPARABLES BY SEGMENT

NATURAL GAS

SELECTED TRANSACTIONS (1)

Announced / Closed Date	Target(s)	Acquirer	Total Enterprise Value (TEV)	TEV / Revenues	TEV / EBITDA
2/24/2022	South Jersey Industries, Inc. (NYSE:SJI)	J.P. Morgan Asset Management, Inc. ; JPMorgan Infrastructure Investments, L.P.	$7,846.1	3.9x	16.6x
10/26/2021	Oasis Midstream Partners LP (NasdaqGS:OMP)	Crestwood Equity Partners LP (NYSE:CEQP)	$1,807.8	4.8x	8.1x
10/14/2021	Southwest Gas Holdings, Inc. (NYSE:SWX)	Icahn Enterprises L.P. (NasdaqGS:IEP)	$8,571.9	2.3x	10.6x
2/17/2021	Enable Midstream Partners, LP (NYSE:ENBL)	Energy Transfer LP (NYSE:ET)	$7,329.7	3.1x	9.5x
1/13/2021	Corning Natural Gas Holding Corporation (OTCPK:CNIG)	Argo Infrastructure Partners LP	$172.0	4.6x	17.2x
7/27/2020	CNX Midstream Partners LP (NYSE:CNXM)	CNX Resources Corporation (NYSE:CNX)	$764.2	5.1x	6.6x
2/27/2020	EQM Midstream Partners, LP	Equitrans Midstream Corporation (NYSE:ETRN)	$4,395.8	7.6x	8.1x
10/21/2019	AltaGas Canada Inc. (TSX:ACI)	Alberta Teachers' Retirement Fund Board; Public Sector Pension Investment Board	$1,278.2	5.2x	15.2x
9/16/2019	SemGroup Corporation	Energy Transfer LP (NYSE:ET)	$5,007.4	1.9x	11.2x
8/27/2019	Tallgrass Energy, LP (NYSE:TGE)	The Blackstone Group Inc. (NYSE:BX)	$9,337.3	9.9x	9.9x
5/8/2019	Andeavor Logistics LP	MPLX LP (NYSE:MPLX)	$14,804.7	5.6x	10.6x
4/24/2019	Anadarko Petroleum Corporation (NYSE:APC)	Occidental Petroleum Corporation (NYSE:OXY)	$57,809.2	4.4x	7.6x
11/8/2018	Western Gas Partners, LP (NYSE:WES)	Western Gas Equity Partners, LP (NYSE:WGP)	$13,427.9	6.5x	12.0x
10/22/2018	EnLink Midstream Partners, LP (NYSE:ENLK)	EnLink Midstream, LLC (NYSE:ENLC)	$12,923.5	1.7x	12.2x
10/9/2018	Antero Midstream Partners LP (NYSE:AM)	Antero Midstream GP LP (NYSE:AMGP)	$7,359.7	7.7x	11.5x
9/28/2018	American Midstream Partners, LP (NYSE:AMID)	ArcLight Capital Partners, LLC	$1,595.1	2.0x	14.2x
8/27/2018	Blue Ridge Mountain Resources, Inc. (OTCPK:BRMR)	Eclipse Resources Corporation (NYSE:ECR)	$348.0	3.6x	12.8x
8/1/2018	Energy Transfer Operating, LP	Energy Transfer, LP (NYSE:ET)	$69,430.8	2.1x	10.9x
5/17/2018	Williams Partners LP (NYSE:WPZ)	The Williams Companies, Inc. (NYSE:WMB)	$57,052.1	7.0x	14.1x

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PUBLIC AND TRANSACTION COMPARABLES BY SEGMENT

PROPANE AND HEATING/FUEL OIL

EQUITY COMPARABLES (1)

Propane and Heating/Fuel Oil (United States & Canada)

Company	LTM[2] Revenues	LTM[2] EBITDA	LTM[2] Margin	Stock Price 03/31/22	% of 52-Week High	Market Cap	Total Enterprise Value[3]	TEV / LTM Revenues	TEV / LTM EBITDA	Net Debt[4]/ EBITDA
Ferrellgas Partners, L.P.	$2,062	$322	15.6%	$17.07	67.4%	$83	$2,033	1.0x	6.3x	6.3x
NGL Energy Partners LP	7,948	460	5.8	2.22	69.3	289	4,684	0.6x	10.2x	7.5x
Spire Inc.	2,054	617	30.0	71.76	92.1	3,714	8,031	3.9x	13.0x	6.2x
Star Group, L.P.	1,790	126	7.0	11.10	92.3	418	721	0.4x	5.7x	2.9x
Suburban Propane Partners, L.P.	1,410	318	22.6	16.10	97.3	1,014	2,313	1.6x	7.3x	3.9x
UGI Corporation	9,073	3,037	33.5	36.22	74.6	7,599	14,607	1.6x	4.8x	2.1x
Median			**19.1%**		**83.3%**			**1.3x**	**6.8x**	**5.1x**
Mean			**19.1%**		**82.2%**			**1.5x**	**7.9x**	**4.8x**

SELECTED TRANSACTIONS

Announced / Closed Date	Target(s)	Acquirer	Total Enterprise Value (TEV)	TEV / Revenues	TEV / EBITDA
3/28//22	Retail Propane Distribution and Refined Fuels Assets of Quarles Petroleum Inc.	Superior Plus Corp. (TSX:SPB)	$145.0	-	-
7/14/2021	Kamps Propane, Inc.	Superior Plus Corp. (TSX:SPB)	$240.0	-	8.9x
4/22/2021	Assets of Freeman Gas, Inc.	Superior Plus Corp. (TSX:SPB)	$170.0	-	-
2/11/2021	Assets of Highlands Propane Inc.	Superior Plus Corp. (TSX:SPB)	$10.9	-	-
2/11/2021	Miller Propane Inc.	Superior Plus Corp. (TSX:SPB)	$5.9	-	-
1/26/2021	All of the Assets of Holden Oil, Inc.	Superior Plus Corp. (TSX:SPB)	$17.8	-	-
11/11/2020	Assets of Petroleum Heat and Power Co., Inc.	Superior Plus Corp. (TSX:SPB)	$6.1	-	-
10/15/2020	Central Coast Propane, Inc.	Superior Plus Corp. (TSX:SPB)	$12.9	-	-
9/1/2020	Simmons Energy Solutions Inc.	MFA Oil Company	-	-	-
8/25/2020	Rymes Propane & Oils, Inc.	Superior Plus Corp. (TSX:SPB)	$159.0	-	-
7/28/2020	Champagne's Energy, Inc.	Superior Plus Corp. (TSX:SPB)	$27.3	-	-
2/6/2020	All American Propane, Inc.	ThompsonGas LLC	-	-	-
1/9/2020	Evelyn Jeanne, Inc., d/b/a Western Propane Service	Superior Plus Corp. (TSX:SPB)	-	-	-
11/13/2019	Propane Distribution Assets in New Brunswick and Quebec	Superior Plus Corp. (TSX:SPB)	$3.7	-	-
11/13/2019	Propane Distribution Assets in North Carolina	Superior Plus Corp. (TSX:SPB)	$1.2	-	-

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PUBLIC AND TRANSACTION COMPARABLES BY SEGMENT

DRILLING

EQUITY COMPARABLES (1)

Drilling (United States & Canada)

Company	LTM[2] Revenues	LTM[2] EBITDA	LTM[2] Margin	Stock Price 03/31/22	% of 52-Week High	Market Cap	Total Enterprise Value[3]	TEV / LTM Revenues	TEV / LTM EBITDA	Net Debt[4]/ EBITDA
AKITA Drilling Ltd.	$102	$7	6.5%	$1.47	100.0%	$59	$129	1.3x	19.3x	11.1x
Baker Hughes Company	20,555	2,770	13.5	36.41	91.5	34,711	39,290	1.9x	14.2x	0.9x
CES Energy Solutions Corp.	1,071	100	9.4	1.92	82.2	488	838	0.8x	8.3x	3.8x
Ensign Energy Services Inc.	889	160	18.0	2.76	97.7	451	1,616	1.8x	10.1x	6.9x
Halliburton Company	16,128	2,814	17.4	37.87	96.2	34,029	41,330	2.6x	14.7x	2.6x
Helmerich & Payne, Inc.	1,553	177	11.4	42.78	94.2	4,513	4,614	3.0x	26.0x	1.1x
Independence Contract Drilling, Inc.	107	2	1.5	4.13	55.8	56	200	1.9x	122.1x	70.9x
NOV Inc.	5,823	301	5.2	19.61	81.5	7,700	8,564	1.5x	28.5x	3.2x
Precision Drilling Corporation	882	120	13.6	74.25	99.1	1,009	1,910	2.2x	15.9x	8.1x
Secure Energy Services Inc.	3,889	267	6.9	4.28	81.2	1,325	2,371	0.6x	8.9x	3.6x
Valaris Limited	1,244	28	2.2	51.97	96.8	3,898	3,847	3.1x	137.9x	(0.8)x
Median			**9.4%**		**94.2%**			**1.9x**	**15.9x**	**3.6x**
Mean			**9.6%**		**88.7%**			**1.9x**	**36.9x**	**10.1x**

SELECTED TRANSACTIONS

Announced / Closed Date	Target(s)	Acquirer	Total Enterprise Value (TEV)	TEV / Revenues	TEV / EBITDA
5/4/2020	Quintana Energy Services Inc.	KLX Energy Services Holdings, Inc. (NasdaqGS:KLXE)	$49.6	0.1x	2.1x
10/8/2018	Rowan Companies plc (NYSE:RDC)	Ensco plc (NYSE:ESV) / Valaris plc (NYSE:VAL)	$3,139.1	3.8x	43.9x
10/1/2018	Sidewinder Drilling LLC	Independence Contract Drilling Inc. (NYSE:ICD)	$291.8	2.6x	45.1x
8/27/2018	Blue Ridge Mountain Resources, Inc. (OTCPK:BRMR)	Eclipse Resources Corporation (NYSE:ECR)	$347.9	3.6x	12.8x
8/13/2018	Trinidad Drilling Ltd. (TSX:TDG)	Ensign Energy Services Inc. (TSX:ESI)	$714.0	1.5x	5.1x
6/5/2018	Xtreme Drilling Corp.	AKITA Drilling Ltd. (TSX:AKT.A)	$155.0	2.8x	162.4x
2/15/2018	Layne Christensen Company (NasdaqGS:LAYN)	Granite Construction Incorporated (NYSE:GVA)	$491.9	1.0x	16.5x
5/30/2017	Atwood Oceanics, Inc. (NYSE:ATW)	Ensco plc (NYSE:ESV)	$1,759.6	2.2x	4.7x
5/19/2017	Savanna Energy Services Corp.	Total Energy Services Inc. (TSX:TOT)	$458.2	1.4x	16.6x

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PUBLIC AND TRANSACTION COMPARABLES BY SEGMENT

LUBRICANTS AND GREASES

EQUITY COMPARABLES (1)

Lubricants and Greases (United States & Canada)

Company	LTM[2] Revenues	LTM[2] EBITDA	LTM[2] Margin	Stock Price 03/31/22	% of 52-Week High	Market Cap	Total Enterprise Value[3]	TEV / LTM Revenues	TEV / LTM EBITDA	Net Debt[4]/ EBITDA
Albemarle Corporation	$3,626	$1,018	28.1%	$221.15	75.9%	$25,899	$28,156	7.8x	27.7x	2.1x
Ashland Global Holdings Inc.	2,249	491	21.8	98.41	88.9	5,602	7,503	3.3x	15.3x	1.0x
Clean Harbors, Inc.	4,167	676	16.2	111.64	93.9	6,074	8,340	2.0x	12.3x	3.5x
CSW Industrials, Inc.	626	135	21.5	117.59	80.8	1,861	2,165	3.5x	16.1x	2.3x
FMC Corporation	5,200	1,372	26.4	131.57	96.3	16,564	19,399	3.7x	14.1x	2.6x
HF Sinclair Corporation	22,344	1,260	5.6	39.85	97.9	8,896	12,864	0.6x	10.2x	2.6x
Ingevity Corporation	1,454	428	29.5	64.07	71.5	2,499	3,552	2.4x	8.3x	2.6x
NewMarket Corporation	2,452	366	14.9	324.38	82.2	3,356	4,133	1.7x	11.3x	2.3x
Ocean Bio-Chem, Inc.	64	12	18.1	8.16	53.6	77	73	1.1x	6.3x	(0.2)x
Quaker Chemical Corporation	1,806	244	13.5	172.81	62.5	3,092	3,859	2.1x	15.8x	3.3x
Stepan Company	2,484	278	11.2	98.81	70.9	2,216	2,491	1.0x	9.0x	1.3x
Synalloy Corporation	381	53	14.0	16.05	83.6	164	267	0.7x	5.0x	2.0x
Trecora Resources	301	24	8.0	8.46	90.2	200	220	0.7x	9.1x	0.7x
Valvoline Inc.	3,371	713	21.2	31.56	83.1	5,660	7,478	2.2x	10.5x	2.6x
Median			**17.2%**		**82.7%**			**2.1x**	**10.9x**	**2.3x**
Mean			**17.9%**		**80.8%**			**2.4x**	**12.2x**	**2.0x**

SELECTED TRANSACTIONS

Announced / Closed Date	Target(s)	Acquirer	Total Enterprise Value (TEV)	TEV / Revenues	TEV / EBITDA
6/22/2022	Ocean Bio-Chem, Inc. (NasdaqCM:OBCI)	OneWater Marine Inc. (NasdaqGM:ONEW)	$122.6	1.9x	10.5x
5/11/2022	Trecora Resources (NYSE:TREC)	Balmoral Funds LLC	$254.3	0.8x	8.8x
9/27/2021	Kraton Corporation (NYSE:KRA)	DL Chemical Co., Ltd.	$2,568.0	1.4x	8.3x
12/7/2020	Gabriel Performance Products, LLC	Huntsman Corporation (NYSE:HUN)	$250.0	2.4x	11.0x
7/12/2019	Milacron Holdings Corp. (NYSE:MCRN)	Hillenbrand, Inc. (NYSE:HI)	$2,051.1	1.7x	12.9x
4/23/2019	Synalloy Corporation (NasdaqGM:SYNL)	Privet Fund Management, LLC	$308.8	1.0x	10.9x

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PUBLIC AND TRANSACTION COMPARABLES BY SEGMENT

SOLAR

EQUITY COMPARABLES (1)

Solar (United States & Canada)

Company	LTM[2] Revenues	LTM[2] EBITDA	LTM[2] Margin	Stock Price 03/31/22	% of 52-Week High	Market Cap	Total Enterprise Value[3]	TEV / LTM Revenues	TEV / LTM EBITDA	Net Debt[4]/ EBITDA
Boralex Inc.	$569	$376	66.2%	$32.46	91.8%	$3,332	$6,451	11.3x	17.1x	7.6x
Capital Power Corporation	1,367	704	51.5	32.61	90.4	3,789	6,961	5.1x	9.9x	3.3x
NextEra Energy Partners, LP	1,017	656	64.5	83.36	93.9	6,998	21,023	20.7x	32.0x	8.6x
NRG Energy, Inc.	26,794	7,181	26.8	38.36	83.2	9,289	17,326	0.6x	2.4x	1.1x
Sunrun Inc.	1,771	(274)	(15.5)	30.37	47.0	6,330	14,083	8.0x	NM	NM
Median			**51.5%**		**90.4%**			**8.0x**	**13.5x**	**5.4x**
Mean			**38.7%**		**81.3%**			**9.1x**	**15.4x**	**5.1x**

SELECTED TRANSACTIONS

Announced / Closed Date	Target(s)	Acquirer	Total Enterprise Value (TEV)	TEV / Revenues	TEV / EBITDA
3/2/2022	New Energy Equity, LLC	ALLETE, Inc. (NYSE:ALE)	$165.5	-	8.3x
6/16/2021	Solarpack Corporacion Tecnologica, S.A. (BME:SPK)	EQT Infrastructure V; EQT Partners AB	$1,543.1	9.5x	20.7x
1/13/2020	TerraForm Power, Inc. (NasdaqGS:TERP)	Brookfield Renewable Partners L.P. (TSX:BEP.UN)	$10,880.5	9.5x	13.0x
11/4/2019	Pattern Energy Group Inc. (NasdaqGS:PEGI)	Canada Pension Plan Investment Board	$6,293.7	11.5x	16.1x
2/5/2018	8point3 Energy Partners LP (NasdaqGS:CAFD)	Capital Dynamics, Inc.	$1,671.3	23.8x	17.0x
5/4/2017	Up to 20 Megawatts of Solar Energy Power Generation Assets	Kontrol Energy Corp. (CNSX:KNR)	$22.6	-	4.1x
3/7/2017	TerraForm Global, Inc. (NasdaqGS:GLBL)	Orion US Holdings 1 LP	$1,651.8	6.6x	17.2x
1/20/2016	Capstone Infrastructure Corporation	Irving Infrastructure Corp.	$1,435.1	-	12.7x
12/3/2014	Hawaiian Electric Industries, Inc. (NYSE:HE)	NextEra Energy, Inc. (NYSE:NEE)	$4,398.8	1.3x	8.5x

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PUBLIC AND TRANSACTION COMPARABLES BY SEGMENT

WIND

EQUITY COMPARABLES (1)

Wind (United States & Canada)

Company	LTM[2] Revenues	LTM[2] EBITDA	LTM[2] Margin	Stock Price 03/31/22	% of 52-Week High	Market Cap	Total Enterprise Value[3]	TEV / LTM Revenues	TEV / LTM EBITDA	Net Debt[4]/ EBITDA
Algonquin Power & Utilities Corp.	$2,387	$838	35.1%	$15.53	91.3%	$10,463	$18,813	7.9x	22.4x	8.5x
Avangrid, Inc.	7,141	1,834	25.7	46.74	84.1	18,069	26,191	3.7x	14.3x	4.3x
Boralex Inc.	569	376	66.2	32.46	91.8	3,332	6,451	11.3x	17.1x	7.6x
Brookfield Renewable Partners L.P.	4,220	2,693	63.8	41.10	92.6	19,462	54,905	13.0x	20.4x	8.0x
Innergex Renewable Energy Inc.	598	406	67.9	15.92	83.6	3,250	7,506	12.6x	18.5x	9.0x
NextEra Energy Partners, LP	1,017	656	64.5	83.36	93.9	6,998	21,023	20.7x	32.0x	8.6x
Northland Power Inc.	1,743	1,182	67.8	33.29	87.8	7,566	13,977	8.0x	11.8x	4.5x
TransAlta Renewables Inc.	390	195	50.1	14.80	82.0	3,950	4,580	11.7x	23.4x	2.9x
Median			**64.2%**		**89.5%**			**11.5x**	**19.4x**	**7.8x**
Mean			**55.1%**		**88.4%**			**11.1x**	**20.0x**	**6.6x**

SELECTED TRANSACTIONS

Announced / Closed Date	Target(s)	Acquirer	Total Enterprise Value (TEV)	TEV / Revenues	TEV / EBITDA
1/13/2020	TerraForm Power, Inc. (NasdaqGS:TERP)	Brookfield Renewable Partners L.P. (TSX:BEP.UN)	$10,880.5	9.5x	13.0x
11/4/2019	Pattern Energy Group Inc. (NasdaqGS:PEGI)	Canada Pension Plan Investment Board	$6,293.7	11.5x	16.1x
10/21/2019	AltaGas Canada Inc. (TSX:ACI)	Alberta Teachers' Retirement Fund Board; Public Sector Pension Investment	$1,278.2	5.2x	15.2x
10/30/2017	Alterra Power Corp. (TSX:AXY)	Innergex Renewable Energy Inc. (TSX:INE)	$745.0	10.6x	31.0x
7/27/2017	Boralex Inc. (TSX:BLX)	Caisse de dépôt et placement du Québec	$3,436.5	12.5x	20.3x
6/19/2017	Pattern Energy Group Inc. (NasdaqGS:PEGI)	Public Sector Pension Investment Board	$4,313.7	12.2x	18.6x
3/7/2017	TerraForm Global, Inc. (NasdaqGS:GLBL)	Orion US Holdings 1 LP	$1,651.8	6.6x	17.2x
1/20/2016	Capstone Infrastructure Corporation	Irving Infrastructure Corp.	$1,435.1	-	12.7x

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PUBLIC AND TRANSACTION COMPARABLES BY SEGMENT

OIL AND GAS FIELD SERVICES

EQUITY COMPARABLES (1)

Oil and Gas Field Services (United States & Canada)

Company	LTM[2] Revenues	LTM[2] EBITDA	Margin	Stock Price 03/31/22	% of 52-Week High	Market Cap	Total Enterprise Value[3]	TEV / LTM Revenues	TEV / LTM EBITDA	Net Debt[4]/ EBITDA
Archrock, Inc.	$783	$308	39.4%	$9.23	91.9%	$1,433	$2,983	3.8x	9.7x	5.0x
Baker Hughes Company	20,555	2,770	13.5	36.41	91.5	34,711	39,290	1.9x	14.2x	0.9x
Blueknight Energy Partners, L.P.	117	51	43.3	3.34	78.4	140	(138)	(1.2)x	(2.7)x	2.4x
Cathedral Energy Services Ltd.	69	3	4.1	0.63	94.0	63	78	1.1x	27.8x	10.4x
CES Energy Solutions Corp.	1,071	100	9.4	1.92	82.2	488	838	0.8x	8.3x	3.8x
Cypress Environmental Partners, L.P.	117	(1)	(1.2)	1.65	45.0	20	96	0.8x	NM	NM
Dawson Geophysical Company	31	(11)	(36.1)	2.33	77.7	55	35	1.1x	NM	NM
ENGlobal Corporation	31	(15)	(47.1)	1.30	27.7	46	33	1.1x	NM	NM
Enservco Corporation	14	(5)	(39.0)	2.70	30.8	31	47	3.4x	NM	NM
Ensign Energy Services Inc.	889	160	18.0	2.76	97.7	451	1,616	1.8x	10.1x	6.9x
Enterprise Group, Inc.	16	6	35.7	0.29	85.7	14	25	1.5x	4.2x	1.8x
Essential Energy Services Ltd.	103	1	0.5	0.35	80.0	50	54	0.5x	107.5x	16.3x
High Arctic Energy Services Inc	70	3	3.8	1.40	87.5	68	72	1.0x	27.0x	1.5x
Innospec Inc.	1,616	195	12.0	92.55	85.9	2,293	2,187	1.4x	11.2x	(0.3)x
Matrix Service Company	682	(52)	(7.6)	8.22	58.1	220	179	0.3x	NM	NM
Mullen Group Ltd.	1,317	169	12.9	10.70	92.3	1,005	1,602	1.2x	9.5x	3.7x
Newpark Resources, Inc.	650	30	4.6	3.66	76.1	338	458	0.7x	15.2x	3.9x
North American Construction Group Ltd.	531	120	22.5	14.44	81.2	413	716	1.3x	6.0x	2.6x
Parkland Corporation	19,903	973	4.9	29.61	88.3	4,601	9,113	0.5x	9.4x	5.0x
Precision Drilling Corporation	882	120	13.6	74.25	99.1	1,009	1,910	2.2x	15.9x	8.1x
Profire Energy, Inc.	31	1	2.3	1.30	81.8	62	53	1.7x	73.0x	(10.1)x
ProPetro Holding Corp.	996	162	16.2	13.93	86.8	1,445	1,333	1.3x	8.2x	(0.4)x
Secure Energy Services Inc.	3,889	267	6.9	4.28	81.2	1,325	2,371	0.6x	8.9x	3.6x
Select Energy Services, Inc.	916	57	6.2	8.57	82.2	862	946	1.0x	16.6x	0.9x
Shawcor Ltd.	906	67	7.4	4.04	74.7	285	465	0.5x	6.9x	2.9x
Smart Sand, Inc.	141	(17)	(12.3)	3.45	71.6	155	184	1.3x	NM	NM
STEP Energy Services Ltd.	496	52	10.4	2.24	95.2	153	314	0.6x	6.1x	3.6x
USA Compression Partners, LP	639	382	59.8	17.61	95.2	1,715	4,189	6.6x	11.0x	5.3x
Median			**7.1%**		**82.2%**			**1.1x**	**9.9x**	**3.6x**
Mean			**7.3%**		**79.3%**			**1.4x**	**18.4x**	**3.5x**

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PUBLIC AND TRANSACTION COMPARABLES BY SEGMENT

EQUIPMENT AND PHYSICAL TECHNOLOGY

EQUITY COMPARABLES (1)

Equipment and Physical Technology (United States & Canada)

Company	LTM[2] Revenues	LTM[2] EBITDA	LTM[2] Margin	Stock Price 03/31/22	% of 52-Week High	Market Cap	Total Enterprise Value[3]	TEV / LTM Revenues	TEV / LTM EBITDA	Net Debt[4]/ EBITDA
AKITA Drilling Ltd.	$102	$7	6.5%	$1.47	100.0%	$59	$129	1.3x	19.3x	11.1x
CSI Compressco LP	314	97	30.8	1.40	65.7	198	846	2.7x	8.7x	6.6x
Enerflex Ltd.	865	100	11.6	6.42	72.0	575	748	0.9x	7.5x	2.1x
Exterran Corporation	686	140	20.4	6.21	92.1	207	754	1.1x	5.4x	4.3x
Forum Energy Technologies, Inc.	582	7	1.2	22.90	80.4	131	363	0.6x	50.0x	34.0x
Geospace Technologies Corporation	85	(2)	(2.9)	5.75	52.6	75	61	0.7x	NM	NM
Gulf Island Fabrication, Inc.	98	(8)	(7.8)	3.92	74.0	62	11	0.1x	NM	NM
Halliburton Company	16,128	2,814	17.4	37.87	96.2	34,029	41,330	2.6x	14.7x	2.6x
Hanwei Energy Services Corp.	6	4	76.1	0.02	66.7	3	4	0.7x	0.9x	0.2x
Helix Energy Solutions Group, Inc.	661	45	6.9	4.78	71.3	725	882	1.3x	19.5x	5.0x
ION Geophysical Corporation	105	19	18.3	0.87	28.3	26	178	1.7x	9.2x	7.8x
Key Energy Services, Inc.	238	(15)	(6.5)	1.01	16.9	14	69	0.3x	NM	NM
McCoy Global Inc.	27	2	8.2	0.76	83.3	21	19	0.7x	8.4x	(0.9)x
MIND Technology, Inc.	28	(10)	(36.4)	1.26	51.4	17	46	1.7x	NM	NM
Nabors Industries Ltd.	2,126	504	23.7	152.72	89.2	1,309	4,408	2.1x	8.7x	4.4x
NOV Inc.	5,823	301	5.2	19.61	81.5	7,700	8,564	1.5x	28.5x	3.2x
Natural Gas Services Group, Inc.	74	17	22.4	11.91	84.8	151	129	1.7x	7.7x	(1.0)x
PHX Energy Services Corp.	314	24	7.6	5.29	99.4	258	267	0.9x	11.2x	0.9x
RPC, Inc.	967	112	11.6	10.67	90.5	2,282	2,246	2.3x	20.1x	(0.2)x
Schlumberger Limited	23,668	4,678	19.8	41.31	89.3	57,974	70,126	3.0x	15.0x	2.4x
Solaris Oilfield Infrastructure, Inc.	187	37	19.6	11.29	87.7	361	427	2.3x	11.6x	(0.5)x
Superior Drilling Products, Inc.	15	2	16.6	1.06	44.5	30	34	2.2x	13.5x	1.5x
TechnipFMC plc	6,327	471	7.5	7.75	72.4	3,504	4,674	0.7x	9.9x	3.4x
TerraVest Industries Inc.	335	52	15.7	20.14	83.7	361	540	1.6x	10.3x	3.8x
TETRA Technologies, Inc.	441	35	8.0	4.11	91.5	525	683	1.5x	19.3x	4.6x
Weatherford International plc	3,751	600	16.0	33.30	90.3	2,347	4,035	1.1x	6.7x	3.0x
Median			**11.6%**		**82.4%**			**1.4x**	**10.8x**	**3.1x**
Mean			**12.2%**		**75.2%**			**1.4x**	**13.9x**	**4.5x**

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PUBLIC AND TRANSACTION COMPARABLES BY SEGMENT

OIL AND GAS FIELD SERVICES AND EQUIPMENT AND PHYSICAL TECHNOLOGY

SELECTED TRANSACTIONS (1)

Announced / Closed Date	Target(s)	Acquirer	Total Enterprise Value (TEV)	TEV / Revenues	TEV / EBITDA
6/21/2022	U.S. Well Services, Inc. (NasdaqCM:USWS)	ProFrac Holding Corp. (NasdaqGS:PFHC)	$270.6	1.3x	13.3x
2/25/2022	Cordy Oilfield Services Inc. (TSXV:CKK)	Vertex Resource Group Ltd. (TSXV:VTX)	$21.3	1.0x	5.2x
2/14/2022	Macro Enterprises Inc. (TSXV:MCR)	-	$111.9	0.4x	3.4x
1/24/2022	Exterran Corporation (NYSE:EXTN)	Enerflex Ltd. (TSX:EFX)	$758.5	1.2x	5.0x
12/13/2021	Nuverra Environmental Solutions, Inc. (NYSEAM:NES)	Select Energy Services, Inc. (NYSE:WTTR)	$51.9	0.5x	20.2x
10/22/2021	FTS International, Inc. (NYSEAM:FTSI)	ProFrac Holding Corp.	$305.1	0.7x	4.0x
8/4/2021	Alamo Pressure Pumping, LLC	NexTier Completion Solutions, Inc.	$238.0	-	3.4x
3/9/2021	Tervita Corporation (TSX:TEV)	Secure Energy Services Inc. (TSX:SES)	$1,022.9	0.9x	6.7x
12/21/2020	RigNet, Inc. (NasdaqGS:RNET)	Viasat, Inc. (NasdaqGS:VSAT)	$235.7	1.0x	8.6x
12/7/2020	SEACOR Holdings Inc. (NYSE:CKH)	American Industrial Partners	$845.5	1.5x	11.1x
9/1/2020	OneStim Business	Liberty Oilfield Services Inc. (NYSE:LBRT)	$427.8	0.1x	1.5x
9/1/2020	Calfrac Well Services Ltd. (TSX:CFW)	THRC Holdings, LP	$675.7	0.8x	34.9x
5/3/2020	Quintana Energy Services Inc. (NYSE:QES)	KLX Energy Services Holdings, Inc. (NasdaqGS:KLXE)	$49.6	0.1x	2.1x
2/23/2020	Strad Inc. (TSX:SDY)	Management	$116.6	1.1x	3.5x
11/20/2019	W&W Energy Services, Inc.	Petrofac Limited (LSE:PFC)	$24.8	-	-
6/17/2019	C&J Energy Services, Inc. (NYSE:CJ)	Keane Group, Inc. (NYSE:FRAC)	$699.2	0.3x	2.9x
3/20/2019	Red Bone Services LLC/Tecton Energy Services Ltd.	KLX Energy Services Holdings, Inc. (NasdaqGS:KLXE)	$82.5	-	4.8x
1/20/2019	ZCL Composites Inc. (TSX:ZCL)	Shawcor Ltd. (TSX:SCL)	$233.7	1.7x	12.5x
10/29/2018	Adler Hot Oil Service, LLC.	Enservco Corporation (AMEX:ENSV)	$12.5	0.7x	4.3x
6/5/2018	Xtreme Drilling Corp.	AKITA Drilling Ltd. (TSX:AKT.A)	$155.0	2.8x	162.4x
5/1/2018	KLX Inc. (NasdaqGS:KLXI)	Aviall Inc.	$4,482.9	-	15.7x
4/16/2018	Aveda Transportation and Energy Services Inc. (TSXV:AVE)	Daseke Companies, Inc.	$2,139.8	0.7x	4.8x

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PUBLIC AND TRANSACTION COMPARABLES BY SEGMENT

STORAGE AND TERMINALS

EQUITY COMPARABLES (1)

Storage and Terminals (United States & Canada)

Company	LTM[2] Revenues	LTM[2] EBITDA	LTM[2] Margin	Stock Price 03/31/22	% of 52-Week High	Market Cap	Total Enterprise Value[3]	TEV / LTM Revenues	TEV / LTM EBITDA	Net Debt[4]/ EBITDA
Alliant Energy Corporation	$3,836	$1,495	39.0%	$62.48	98.8%	$15,670	$23,540	6.1x	15.7x	5.3x
AltaGas Ltd.	9,115	1,142	12.5	22.43	95.3	6,291	14,599	1.6x	12.8x	5.9x
Blueknight Energy Partners, L.P.	117	51	43.3	3.34	78.4	140	(138)	(1.2)x	(2.7)x	2.4x
Chart Industries, Inc.	1,383	171	12.3	171.77	83.3	6,156	6,926	5.0x	40.6x	4.7x
EnLink Midstream, LLC	7,772	1,077	13.9	9.65	93.9	4,671	10,756	1.4x	10.0x	4.0x
Equitrans Midstream Corporation	1,279	996	77.8	8.44	73.3	3,652	11,666	9.1x	11.7x	6.9x
Gibson Energy Inc.	6,640	331	5.0	20.03	92.7	2,969	4,314	0.6x	13.0x	3.6x
Green Plains Partners LP	77	50	64.4	14.16	88.4	329	410	5.3x	8.3x	1.7x
Magellan Midstream Partners, L.P.	2,777	1,128	40.6	49.07	91.1	10,422	15,682	5.6x	13.9x	4.9x
MPLX LP	9,948	5,041	50.7	33.18	95.9	33,665	55,983	5.6x	11.1x	4.1x
NuStar Energy L.P.	1,667	707	42.4	14.42	69.6	1,590	6,220	3.7x	8.8x	4.5x
Median			**40.6%**		**91.1%**			**5.0x**	**11.7x**	**4.5x**
Mean			**36.5%**		**87.3%**			**3.9x**	**13.0x**	**4.4x**

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PUBLIC AND TRANSACTION COMPARABLES BY SEGMENT

STORAGE AND TERMINALS

SELECTED TRANSACTIONS (1)

Announced / Closed Date	Target(s)	Acquirer	Total Enterprise Value (TEV)	TEV / Revenues	TEV / EBITDA
10/26/2021	Oasis Midstream Partners LP (NasdaqGS:OMP)	Crestwood Equity Partners LP (NYSE:CEQP)	$1,807.8	4.8x	8.1x
8/5/2021	BP Midstream Partners LP (NYSE:BPMP)	BP Midstream Partners Holdings LLC	$1,826.9	14.5x	9.3x
6/1/2021	Stagecoach Gas Services LLC	Kinder Morgan, Inc. (NYSE:KMI)	$1,225.0	-	10.0x
2/17/2021	Enable Midstream Partners, LP (NYSE:ENBL)	Energy Transfer LP (NYSE:ET)	$7,329.7	3.1x	9.5x
2/10/2021	Inter Pipeline Ltd. (TSX:IPL)	Brookfield Infrastructure Partners L.P. (NYSE:BIP)	$13,857.6	6.5x	17.2x
8/24/2020	Cheniere Energy Partners, LP (AMEX:CQP)	Brookfield Infrastructure Partners LP (NYSE:BIP) and Blackstone Infrastructure Partners, LP	$17,027.5	5.1x	11.3x
7/27/2020	CNX Midstream Partners LP (NYSE:CNXM)	CNX Resources Corporation (NYSE:CNX)	$764.2	5.1x	6.6x
2/27/2020	EQM Midstream Partners, LP	Equitrans Midstream Corporation (NYSE:ETRN)	$4,395.8	7.6x	8.1x
9/16/2019	SemGroup Corporation (NYSE:SEMG)	Energy Transfer LP (NYSE:ET)	$4,991.7	2.1x	13.5x
8/27/2019	Tallgrass Energy, LP (NYSE:TGE)	The Blackstone Group Inc. (NYSE:BX)	$9,337.3	8.9x	11.2x
8/21/2019	Kinder Morgan Canada Limited (TSX:KML)	Pembina Pipeline Corporation (TSX:PPL)	$2,294.7	4.4x	16.3x
5/10/2019	Buckeye Partners, LP (NYSE:BPL)	IFM Global Infrastructure Fund	$10,500.3	2.7x	18.6x
11/8/2018	Western Gas Partners, LP (NYSE:WES)	Western Gas Equity Partners, LP (NYSE:WGP)	$13,427.9	6.5x	12.0x
10/22/2018	EnLink Midstream Partners, LP (NYSE:ENLK)	EnLink Midstream, LLC (NYSE:ENLC)	$12,923.5	1.7x	12.2x
10/18/2018	Valero Energy Partners LP	Valero Energy Corporation (NYSE:VLO)	$4,069.8	7.6x	10.5x
9/19/2018	Dominion Energy Midstream Partners, LP (NYSE:DM)	Dominion Energy, Inc. (NYSE:D)	$10,405.4	13.6x	19.7x
8/1/2018	Energy Transfer Partners, LP (NYSE:ETP)	Energy Transfer Equity, LP (NYSE:ETE)	$69,412.3	2.1x	10.8x
7/30/2018	Four Corners Area Assets	Harvest Midstream Company	$1,125.0	-	13.2x
7/10/2018	Transmontaigne Partners LP (NYSE:TLP)	TLP Acquisition Holdings LLC	$1,254.3	6.1x	11.5x
6/29/2018	Boardwalk Pipeline Partners, LP	Boardwalk GP LP	$6,792.1	5.3x	8.3x
5/17/2018	Enbridge Energy Partners, LP (NYSE:EEP)	Enbridge Inc. (TSX:ENB)	$15,925.8	6.6x	10.1x
4/30/2018	Andeavor (NYSE:ANDV)	Marathon Petroleum Corporation (NYSE:MPC)	$35,101.9	0.9x	12.7x

(1) Total Enterprise Value is defined as market capitalization plus total debt less cash and cash equivalents.

PUBLIC AND TRANSACTION COMPARABLES BY SEGMENT

PIPELINES

EQUITY COMPARABLES (1)

Oil and Gas Pipelines (United States & Canada)

Company	LTM[2] Revenues	LTM[2] EBITDA	LTM[2] Margin	Stock Price 03/31/22	% of 52-Week High	Market Cap	Total Enterprise Value[3]	TEV / LTM Revenues	TEV / LTM EBITDA	Net Debt[4]/ EBITDA
Antero Midstream Corporation	$963	$736	76.4%	$10.87	92.8%	$5,192	$8,315	8.6x	11.3x	4.3x
ATCO Ltd.	3,627	1,393	38.4	34.39	92.9	3,916	14,251	3.9x	10.2x	5.1x
Blueknight Energy Partners, L.P.	117	51	43.3	3.34	78.4	140	(138)	(1.2)x	(2.7)x	2.4x
Crestwood Equity Partners LP	5,120	493	9.6	29.92	88.2	2,932	6,053	1.2x	12.3x	5.8x
Enbridge Inc.	40,074	9,512	23.7	46.10	99.0	93,374	162,662	4.1x	17.1x	6.4x
Energy Transfer LP	70,913	10,778	15.2	11.19	96.7	34,497	99,602	1.4x	9.2x	4.6x
Enterprise Products Partners L.P.	44,660	7,855	17.6	25.81	98.7	56,172	84,422	1.9x	10.7x	3.8x
Equitrans Midstream Corporation	1,279	996	77.8	8.44	73.3	3,652	11,666	9.1x	11.7x	6.9x
Evolve Transition Infrastructure LP	57	43	74.5	0.52	27.0	75	521	9.1x	12.2x	10.5x
Genesis Energy, L.P.	2,236	412	18.4	11.71	86.9	1,435	5,964	2.7x	14.5x	7.3x
Gibson Energy Inc.	6,640	331	5.0	20.03	92.7	2,969	4,314	0.6x	13.0x	3.6x
Kinder Morgan, Inc.	15,692	5,757	36.7	18.91	98.0	42,878	76,376	4.9x	13.3x	5.6x
ONEOK, Inc.	18,790	3,186	17.0	70.63	97.6	31,516	45,272	2.4x	14.2x	4.3x
Plains All American Pipeline, L.P.	47,389	1,993	4.2	10.76	86.9	7,586	21,903	0.5x	11.0x	4.6x
Summit Midstream Partners, LP	398	180	45.2	14.88	31.9	151	1,779	4.5x	9.9x	7.3x
Targa Resources Corp.	18,276	2,149	11.8	75.47	97.6	17,227	27,629	1.5x	12.9x	3.3x
The Williams Companies, Inc.	10,845	4,460	41.1	33.41	97.2	40,670	65,542	6.0x	14.7x	4.9x
TC Energy Corporation	10,818	6,997	64.7	56.48	96.4	55,395	100,244	9.3x	14.3x	6.0x
Western Midstream Partners, LP	2,960	1,830	61.8	25.22	92.4	10,177	17,057	5.8x	9.3x	3.6x
Median			**36.7%**		**92.8%**			**3.9x**	**12.2x**	**4.9x**
Mean			**35.9%**		**85.5%**			**4.0x**	**11.5x**	**5.3x**

(1) Matching public companies to middle-market companies is an imperfect comparable analysis due to the variables of size, equipment, markets, etc. Nonetheless JKC's research has yielded this list as the closest available.
(2) LTM is defined as last twelve months.
(3) Total Enterprise Value is defined as market capitalization plus total debt less cash and cash equivalents.
(4) Net Debt is defined as total debt less cash and cash equivalents.

PUBLIC AND TRANSACTION COMPARABLES BY SEGMENT

PIPELINES

SELECTED TRANSACTIONS (1)

Announced / Closed Date	Target(s)	Acquirer	Total Enterprise Value (TEV)	TEV / Revenues	TEV / EBITDA
2/11/2022	Shell Midstream Partners, L.P. (NYSE:SHLX)	Shell Pipeline Company L.P.	$6,370.5	11.5x	10.0x
8/5/2021	BP Midstream Partners LP (NYSE:BPMP)	BP Midstream Partners Holdings LLC	$1,826.9	14.5x	9.3x
6/1/2021	Stagecoach Gas Services LLC	Kinder Morgan, Inc. (NYSE:KMI)	$1,225.0	-	10.0x
2/17/2021	Enable Midstream Partners, LP (NYSE:ENBL)	Energy Transfer LP (NYSE:ET)	$7,329.7	3.1x	9.5x
2/10/2021	Inter Pipeline Ltd. (TSX:IPL)	Brookfield Infrastructure Partners L.P. (NYSE:BIP)	$13,857.6	6.5x	17.2x
10/5/2020	TC PipeLines, LP (NYSE:TCP)	TC Energy Corporation (TSX:TRP)	$2,213.6	7.4x	9.0x
7/27/2020	CNX Midstream Partners LP (NYSE:CNXM)	CNX Resources Corporation (NYSE:CNX)	$764.2	5.1x	6.6x
2/27/2020	EQM Midstream Partners, LP	Equitrans Midstream Corporation (NYSE:ETRN)	$4,395.8	7.6x	8.1x
9/16/2019	SemGroup Corporation (NYSE:SEMG)	Energy Transfer LP (NYSE:ET)	$4,991.7	2.1x	13.5x
8/27/2019	Tallgrass Energy, LP (NYSE:TGE)	The Blackstone Group Inc. (NYSE:BX)	$9,337.3	8.9x	11.2x
8/21/2019	Kinder Morgan Canada Limited (TSX:KML)	Pembina Pipeline Corporation (TSX:PPL)	$2,294.7	4.4x	16.3x
5/10/2019	Buckeye Partners, LP (NYSE:BPL)	IFM Global Infrastructure Fund	$10,500.3	2.7x	18.6x
11/8/2018	Western Gas Partners, LP (NYSE:WES)	Western Gas Equity Partners, LP (NYSE:WGP)	$13,427.9	6.5x	12.0x
10/18/2018	Valero Energy Partners LP	Valero Energy Corporation (NYSE:VLO)	$4,069.8	7.6x	10.5x
10/9/2018	Antero Midstream Partners LP (NYSE:AM)	Antero Midstream GP LP (NYSE:AMGP)	$7,359.7	7.7x	11.5x
9/28/2018	American Midstream Partners, LP (NYSE:AMID)	ArcLight Capital Partners, LLC	$1,595.1	2.0x	14.2x
7/10/2018	Transmontaigne Partners LP (NYSE:TLP)	TLP Acquisition Holdings LLC	$1,254.3	6.1x	11.5x
5/17/2018	Williams Partners LP	The Williams Companies, Inc. (NYSE:WMB)	$57,090.5	7.0x	14.1x
5/17/2018	Enbridge Energy Partners, LP (NYSE:EEP)	Enbridge Inc. (TSX:ENB)	$15,925.8	6.6x	10.1x
5/10/2018	Amberjack Pipeline Company LLC	Shell Midstream Partners, LP (NYSE:SHLX)	$1,928.7	8.2x	9.4x
3/26/2018	Tallgrass Energy Partners, LP (NYSE:TEP)	Tallgrass Equity, LLC	$4,176.5	6.4x	6.9x
8/15/2017	Western Refining Logistics, LP (NYSE:WNRL)	Andeavor Logistics LP (NYSE:ANDX)	$1,843.8	0.8x	14.4x

(1) Total Enterprise Value is defined as market capitalization plus total debt less cash and cash equivalents.

PUBLIC AND TRANSACTION COMPARABLES BY SEGMENT

TRUCKERS

EQUITY COMPARABLES (1)

Truckers (United States & Canada)

Company	LTM[2] Revenues	LTM[2] EBITDA	LTM[2] Margin	Stock Price 03/31/22	% of 52-Week High	Market Cap	Total Enterprise Value[3]	TEV / LTM Revenues	TEV / LTM EBITDA	Net Debt[4]/ EBITDA
Adams Resources & Energy, Inc.	$2,474	$40	1.6%	$38.49	97.2%	$168	$91	0.0x	2.3x	(2.0)x
ArcBest Corporation	4,486	469	10.5	80.50	64.4	1,980	2,192	0.5x	4.7x	0.6x
Covenant Logistics Group, Inc.	1,117	131	11.7	21.53	62.0	362	428	0.4x	3.3x	0.6x
Daseke, Inc.	1,644	194	11.8	10.07	76.5	630	1,249	0.8x	6.4x	2.8x
Heartland Express, Inc.	606	173	28.5	14.07	70.1	1,111	953	1.6x	5.5x	(1.1)x
Hess Corporation	7,692	3,804	49.5	107.04	96.7	32,982	40,136	5.2x	10.6x	1.9x
J.B. Hunt Transport Services, Inc.	13,039	1,740	13.3	200.79	92.0	21,053	22,175	1.7x	12.7x	0.7x
Knight-Swift Transportation Holdings Inc.	6,602	1,613	24.4	50.46	81.0	8,386	10,373	1.6x	6.4x	1.2x
Landstar System, Inc.	7,224	615	8.5	150.83	80.0	5,600	5,579	0.8x	9.1x	0.1x
Marten Transport, Ltd.	1,038	214	20.6	17.76	89.1	1,476	1,420	1.4x	6.6x	(0.3)x
Old Dominion Freight Line, Inc.	5,627	1,791	31.8	298.68	80.0	34,308	33,793	6.0x	18.9x	(0.2)x
P.A.M. Transportation Services, Inc.	778	172	22.1	34.75	85.0	774	940	1.2x	5.5x	0.8x
Patriot Transportation Holding, Inc.	83	7	8.5	7.98	49.0	28	22	0.3x	3.1x	(0.5)x
Parkland Corporation	19,903	973	4.9	29.61	88.3	4,601	9,113	0.5x	9.4x	5.0x
Ryder System, Inc.	10,295	2,840	27.6	79.33	85.3	4,055	10,757	1.0x	3.8x	2.5x
Saia, Inc.	2,466	532	21.6	243.82	66.7	6,415	6,469	2.6x	12.1x	0.0x
Schneider National, Inc.	6,001	936	15.6	25.50	92.7	4,530	4,581	0.8x	4.9x	(0.1)x
TFI International Inc.	8,263	1,065	12.9	106.65	89.6	9,818	11,864	1.4x	11.1x	2.0x
Titanium Transportation Group Inc.	360	21	6.0	2.16	65.1	95	165	0.5x	7.7x	3.5x
Universal Logistics Holdings, Inc.	1,860	194	10.5	20.15	74.2	541	1,057	0.6x	5.4x	2.7x
USA Truck, Inc.	753	77	10.3	20.60	70.8	172	339	0.5x	4.4x	2.2x
Werner Enterprises, Inc.	2,883	537	18.6	41.00	82.4	2,698	3,136	1.1x	5.8x	0.6x
Yellow Corporation	5,184	226	4.4	7.01	46.0	360	1,799	0.3x	8.0x	6.6x
Median			**12.9%**		**80.0%**			**0.8x**	**6.4x**	**0.7x**
Mean			**16.3%**		**77.6%**			**1.3x**	**7.3x**	**1.3x**

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PUBLIC AND TRANSACTION COMPARABLES BY SEGMENT

TRUCKERS

SELECTED TRANSACTIONS (1)

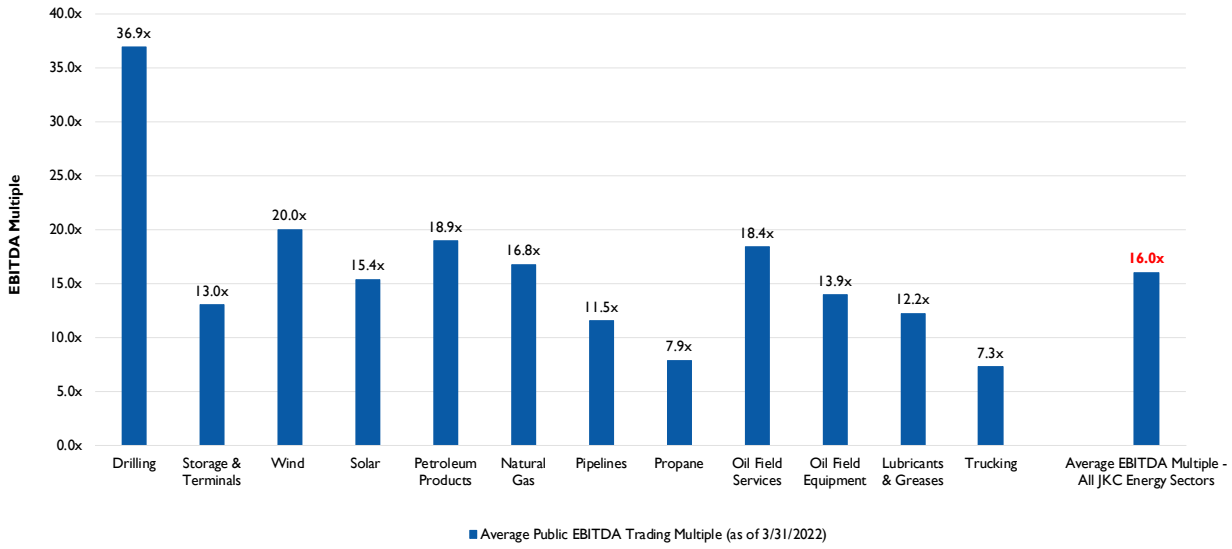
Announced / Closed Date	Target(s)	Acquirer	Total Enterprise Value (TEV)	TEV / Revenues	TEV / EBITDA
2/9/2022	Pilot Freight Services, Inc.	A.P. Møller - Mærsk A/S (CPSE:MAERSK B)	$168.0	-	-
2/9/2022	AAT Carriers, Inc.	Covenant Logistics Group, Inc. (NasdaqGS:CVLG)	$55.0	2.2x	-
1/4/2022	Midwest Logistics Systems Ltd.	Schneider National, Inc. (NYSE:SNDR)	$262.6	1.3x	-
2/19/2020	Performance Team LLC	A.P. Møller - Mærsk A/S (CPSE:MAERSK B)	$545.0	1.0x	6.1x
11/5/2018	CaseStack, Inc.	Hub Group, Inc. (NasdaqGS:HUBG)	$255.0	1.1x	11.6x
8/31/2018	Mode Transportation, LLC	York Capital Management	$238.5	-	10.0x
12/7/2017	Keen Transport, Inc.	Wallenius Wilhelmsen ASA (OB:WALWIL)	$64.0	0.8x	6.4x
7/19/2016	Span-Alaska Transportation, Inc.	Matson Logistics, Inc.	$197.6	-	9.4x
5/2/2016	Trimac Transportation Ltd.	Trimac Corporation	$215.9	-	5.9x
9/9/2015	Con-way Inc.	XPO Logistics, Inc. (NYSE:XPO)	$3,057.0	-	6.2x
8/17/2015	Liberty International Inc.	Janel Corporation (OTCPK:JANL)	$2.3	-	26.6x
7/28/2015	Stagecoach Cartage and Distribution, LLC	Roadrunner Transportation Systems, Inc. (NYSE:RRTS)	$40.0	-	5.7x
5/25/2015	Hodges Trucking Company, LLC	Rodan Transport (U.S.A.) Ltd.	$42.0	-	3.0x
5/6/2015	Quality Distribution Inc.	Apax Partners LLP	$823.3	-	12.0x
5/4/2015	Bridge Terminal Transport Inc.	XPO Logistics, Inc. (NYSE:XPO)	$100.0	-	8.1x
4/21/2015	Command Transportation, LLC	Echo Global Logistics, Inc. (NasdaqGS:ECHO)	$391.0	-	10.6x
1/20/2015	Wheels Group Inc.	Radiant Global Logistics Ltd.	$80.1	-	13.5x
10/1/2014	Barr-Nunn Transportation, Inc.	Knight Transportation, Inc. (NYSE:KNX)	$115.9	-	4.5x
7/24/2014	Contrans Group Inc.	TFI International Inc. (TSX:TFII)	$528.2	-	6.8x

(1) Total Enterprise Value is defined as market capitalization plus total debt less cash and cash equivalents.

PUBLIC AND TRANSACTION COMPARABLES BY SEGMENT

AVERAGE PUBLIC EBITDA TRADING MULTIPLES

ALL JKC ENERGY SECTORS (AS OF 3/31/2022)



FACTOIDS: LITTLE-KNOWN FACTS AND STATS

Petroleum Products (1)

- The Biden administration announced the largest-ever release of oil from the U.S. Strategic Petroleum Reserve (SPR). The move is an effort to lower crude prices as Russia's invasion of Ukraine has sent oil and gasoline prices rising.
- One million barrels per day will be released from the SPR over a 6-month period, for a total release of about 180 million barrels, dwarfing previous emergency releases.
- The Department of Energy will use the revenue from the release to restock the SPR in future years.

Natural Gas (2)

- Renewable natural gas (RNG) is any pipeline compatible gaseous fuel derived from biogenic or other renewable sources that has lower lifecycle CO2e emissions than geological natural gas.
- The majority of RNG comes from capturing emissions from existing waste streams found in landfills, wastewater treatment plants and animal manure. This gas must be treated and cleaned, raising it to a standard where it can be injected into existing gas pipelines.
- RNG can also be produced using renewable electricity, such as wind or solar power. The electricity is used to power an electrolyzer, which splits water into hydrogen and oxygen. Hydrogen can be captured, stored and used, or combined with a source of carbon to produce renewable methane: RNG. Power-to-gas also offers a long-term energy storage solution for renewable electricity.

Propane and Heating/Fuel Oil (3)

- The U.S. average residential heating oil price ended the 2021–22 winter heating season at $5.13 per gallon, $2.26 per gallon higher than at the same time last year.
- The U.S. average residential propane price ended the winter heating season at $2.98 per gallon, which is $0.69 higher than the end of season price for last winter.

(1) Oil & Gas Journal.
(2) American Gas Association.
(3) U.S. Energy Information Administration.

FACTOIDS: LITTLE-KNOWN FACTS AND STATS

LUBRICANTS AND GREASES (1)

- Engine oil contains about 7% to 10% additive chemicals, the rest is base oil.
- Transmission fluids contain more additives, generally 10% to 12%; the rest is base oil.
- An NLGI 2 grease contains about 90% base oil with the rest being made up of thickener and additives.

SOLAR (2)

- Shipping constraints and other supply chain challenges have led to price increases across the U.S. solar industry. For the first time since 2014, year over year prices have increased across all market segments for three consecutive quarters, leaving utility-scale solar prices 18% higher than they were a year ago.
- Price increases have impacted deployment, with a third of Q4 2021 projects delayed a quarter or more, and 13% of expected 2022 projects delayed by a year or more or canceled outright,

WIND (3)

- Renewable generation surpassed nuclear in the U.S. electric power sector in 2021. The increase came mainly from more wind and solar generation as a result of more wind turbines and utility-scale solar power plants coming online.
- Wind generation increased by 12% in 2021.
- Wind turbines currently rank as the third-largest source of electricity-generating capacity in the United States, behind natural gas-fired generators and coal-fired generators.

(1) Lubes n Greases Magazine.
(2) Solar Energy Industries Association.
(3) U.S. Energy Information Administration.

FACTOIDS: LITTLE-KNOWN FACTS AND STATS

Oil and Gas Field Services (1)

- Offshore oil drilling started in 1896. A 300-foot pier was built off the Santa Barbara Channel in California and a standard cable-tool rig was mounted on it. By 1897, this first offshore well was producing oil, which lasted for 25 years.
- In 1938, the first offshore well was constructed in the Gulf of Mexico. A freestanding drilling platform was built, a 320-foot by 180-foot freestanding wooden deck in 14-feet of water about a mile offshore near Creole, Louisiana.
- The Creole platform was designed to withstand winds of 150 miles per hour and was constructed 15 feet above the water with three hundred treated yellow pine pilings driven 14 feet into the sandy bottom.
- The Gulf of Mexico currently provides 15% of the nation's oil.

Equipment and Physical Technology (2)

- 5G technology allows energy producers to incorporate renewable energy sources more easily into the grid. It will also enable greater use of smart meters on mobile devices.
- A recent study from Ericsson noted that 5G solutions will be essential in managing grid topology and reducing the risk of failure. More effective data and network management could help reduce grid interruption times by 50% to 70%.
- With attacks on power generation and distribution facilities on the rise, the adoption of more disparate and physically distant renewable infrastructure introduces even greater risk of compromise. 5G offers a massive upgrade in power grid network observability, and, in turn, security.

Storage and Terminals (3)

- Storing crude oil in above-ground storage tanks is costly as it tends to lose viscosity. A time period ranging between 30 days to 6 months is optimal for storing crude. Beyond this period, chances for the oil to lose its viscosity is high.
- Prolonged oil storage in a crude oil tank often leads to the accumulation of sludge at the bottom of the container. It's essential to remove the sludge periodically. To avoid issues from the accumulation of sludge, clean oil tanks every three years.

(1) Institute for Energy Research.
(2) BizTech.
(3) GSC Tanks.

FACTOIDS: LITTLE-KNOWN FACTS AND STATS

PIPELINES (1)

- Built out of two wooden boards combined to make a "V" shape, the first oil pipeline is widely believed to have been produced in 1862 at the well of Phillips No. 2 in Oil Creek Valley, PA. It ran oil about 1,000 feet with the help of gravity.
- By 1863, a two-and-a-half mile iron pipeline, complete with pumps helping to move the oil up a 500-foot incline, was laid in Pennsylvania.
- In 1865, the first fully successful pipeline used wrought iron and highly reinforced joints to transport between 1,950 and 2,000 barrels of oil daily across five miles of land.

TRUCKERS (2)

- Truckers' earnings are currently increasing at 5x their historical rate.
- The average weekly earnings for long-haul, truckload drivers is up over 25% since the beginning of 2019.
- The average private fleet driver earns more than $86,000 annually.

(1) Smithsonian Magazine.
(2) American Trucking Association.

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ABOUT JORDAN KNAUFF & COMPANY

Jordan Knauff & Company was founded in 2001 to undertake a distinct mission: to assemble and maintain a staff of top-notch investment banking personnel and offer their knowledge and experience to provide the best available investment banking services to middle-market companies, the entrepreneurs who lead them and the financial entities that transact with them. On a combined basis, over the course of their careers our employees have completed over 200 transactions as investors, owners, operators, buyers, sellers and investment bankers of middle-market businesses across a variety of industries. The majority of our firm's broad transaction experience has been with private companies owned by one shareholder, a partnership, a family or private equity investors.

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ABOUT THE ENERGY EQUIPMENT & INFRASTRUCTURE ALLIANCE

EEIA is a Washington, D.C.-based trade association representing the North American natural gas and petroleum production, transportation and processing infrastructure supply chain. That supply chain is comprised of 60 industries that provide construction, equipment, materials, services and supplies to energy infrastructure and operations. EEIA advocates for sound legislative and regulatory policies at the federal and state levels. Its members include companies, trade associations and labor organizations operating in the energy sector. EEIA advocates for industries both directly with policymakers, and through mobilization of business leaders and workers to act and speak for the value and benefits of full and responsible development of energy resources in their communities and with their political leaders.

ENERGY EQUIPMENT & INFRASTRUCTURE ALLIANCE

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